TECHNOLOGY DEPT.

Gas Journal

VOL. 276. 105TH YEAR. LONDON, OCTOBER 21, 1953. NO. 4716. PRICE 1/3

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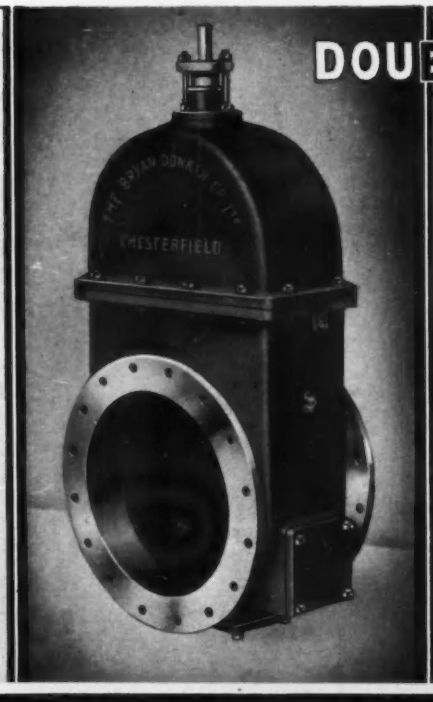

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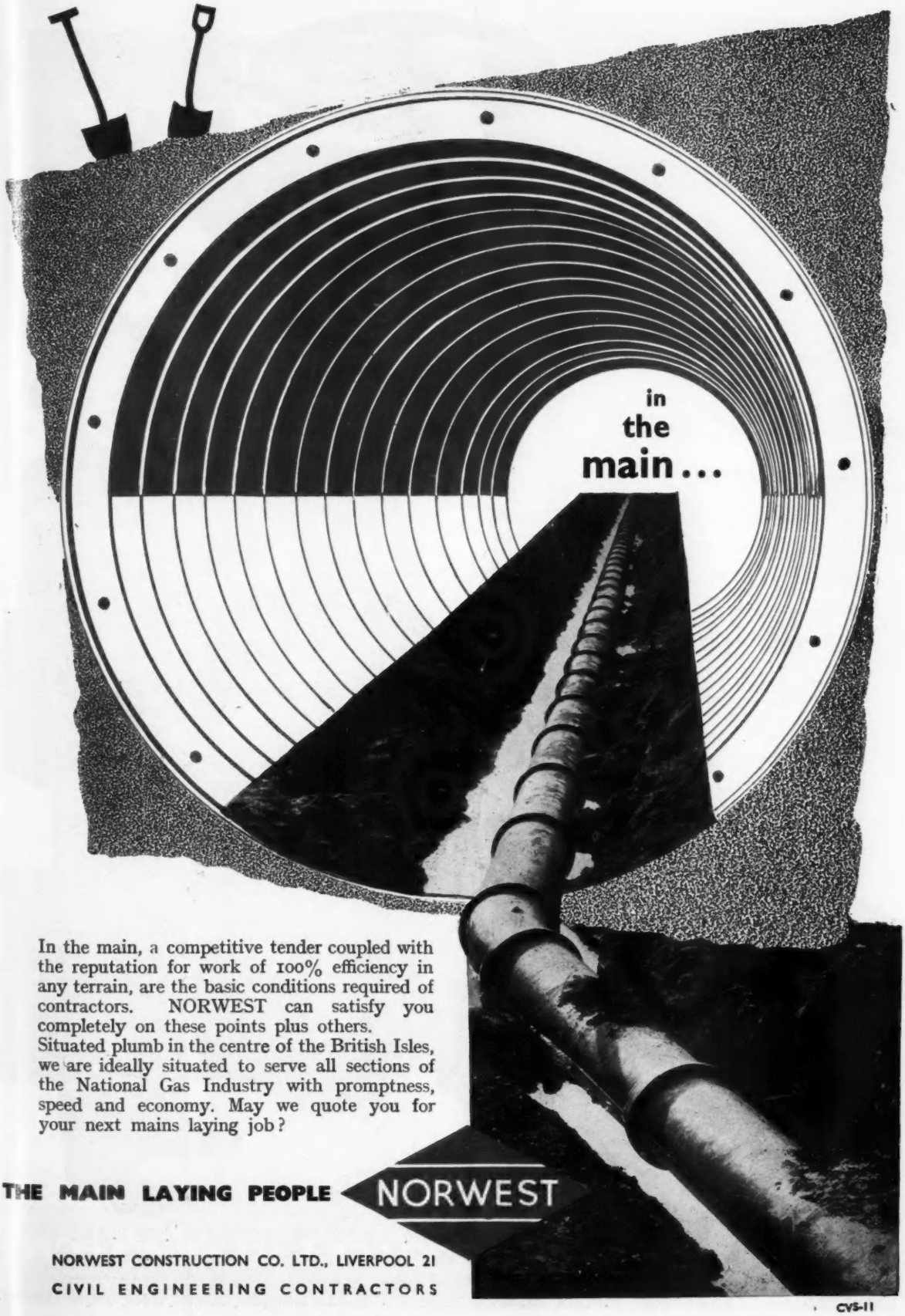

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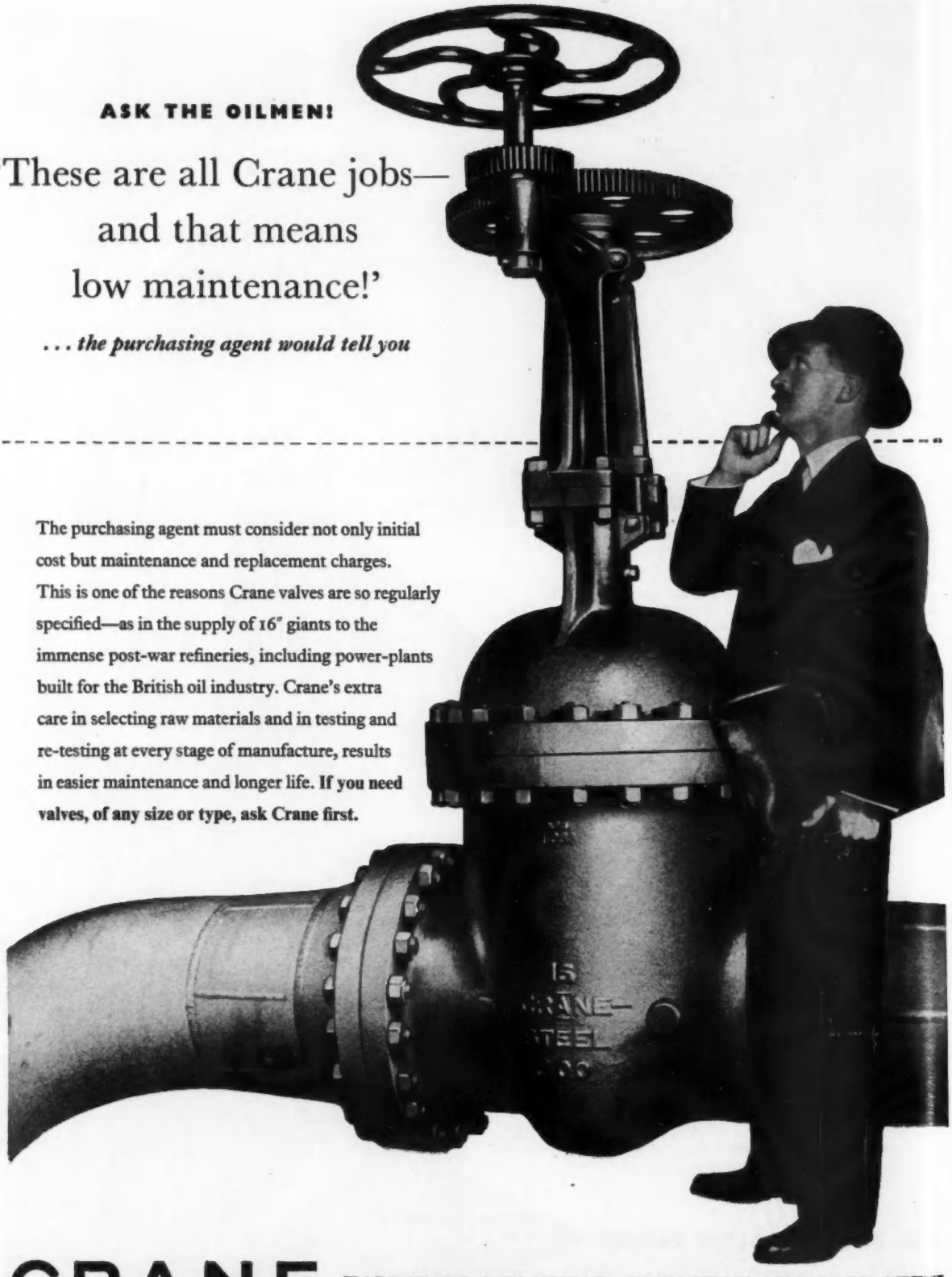

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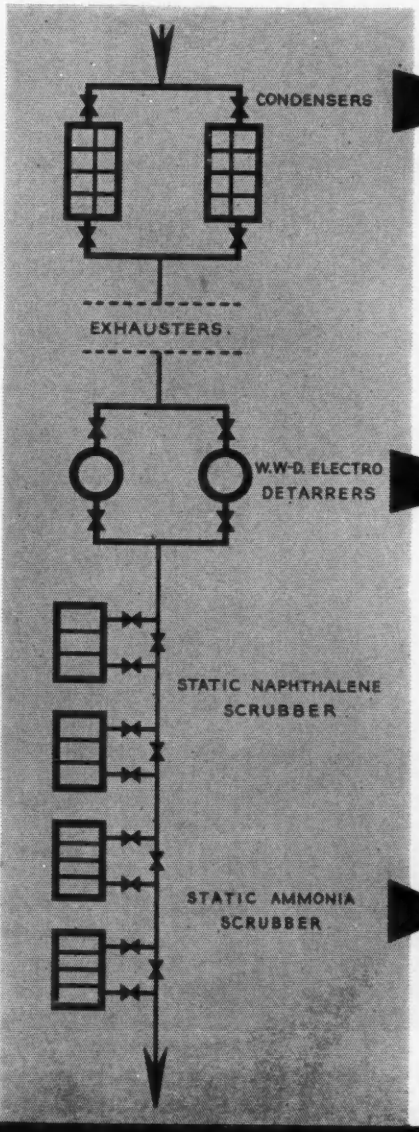

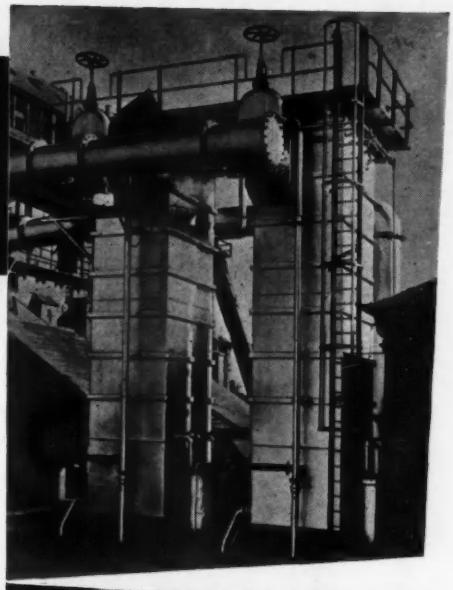

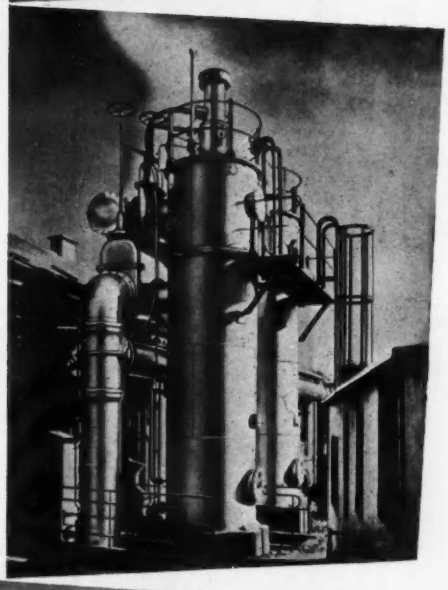

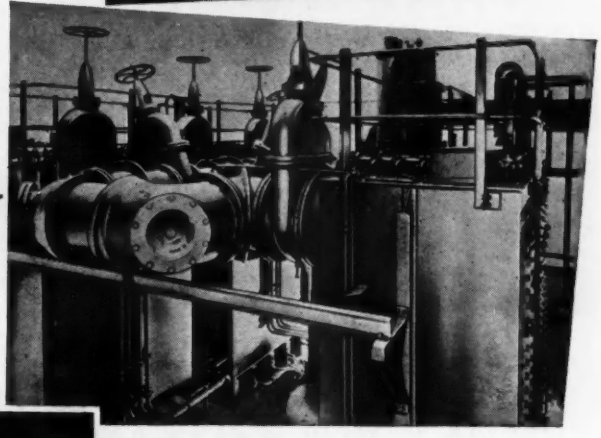

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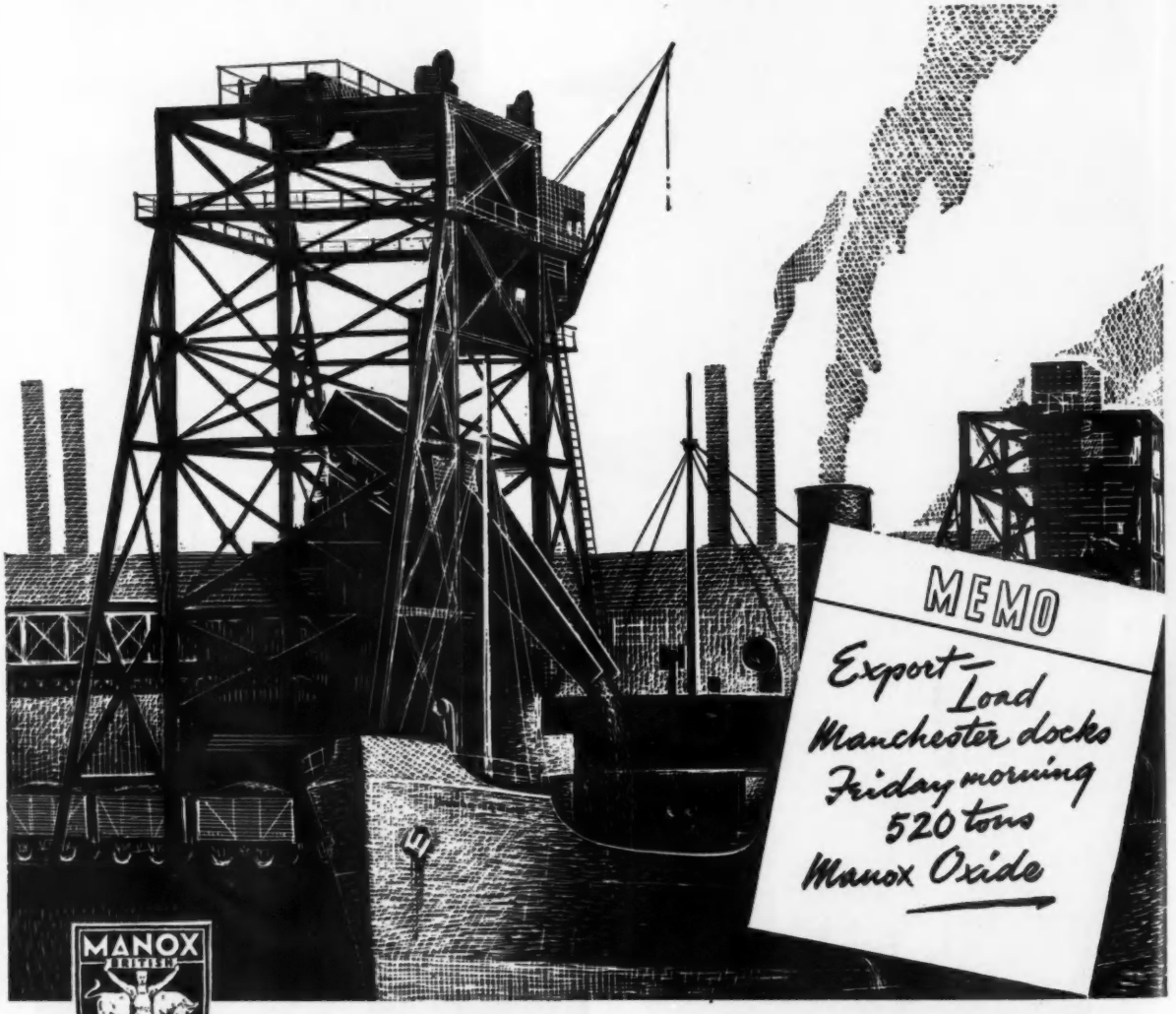

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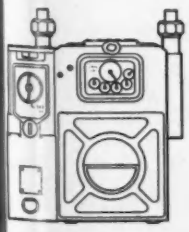

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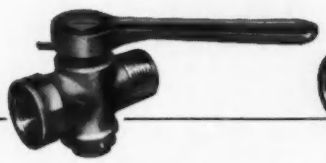
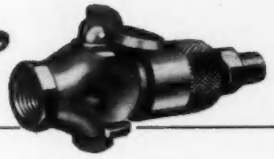
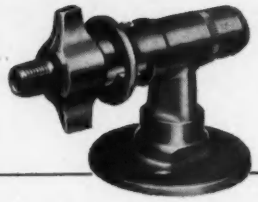


M & F Main Cock with Iron Key.



"Simflex" Drop Lever Cock with plug in Connector



9044 SE Plug in Cock and Connector (Rubber Sleeve Joint)

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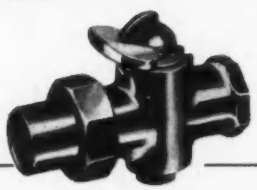
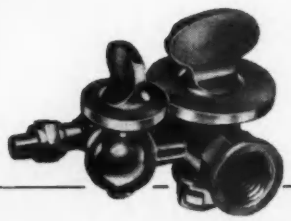


Union Cock with drop lever.

Gas Fire Cock with loose key, flanged for floor fixing.



Main and Bye-pass Interlocking Cock. for use on large-scale Catering equipment.

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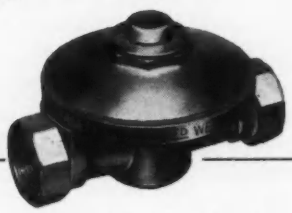
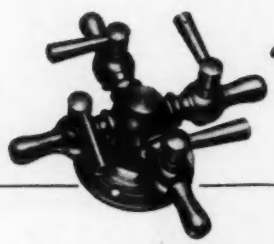
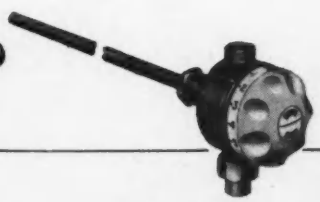


Constant Pressure Governor spring loaded for horizontal or vertical use



4 Way Laboratory Bench Cock, for Laboratory use.



Cooker Thermostat White plastic head with figures marked in black.

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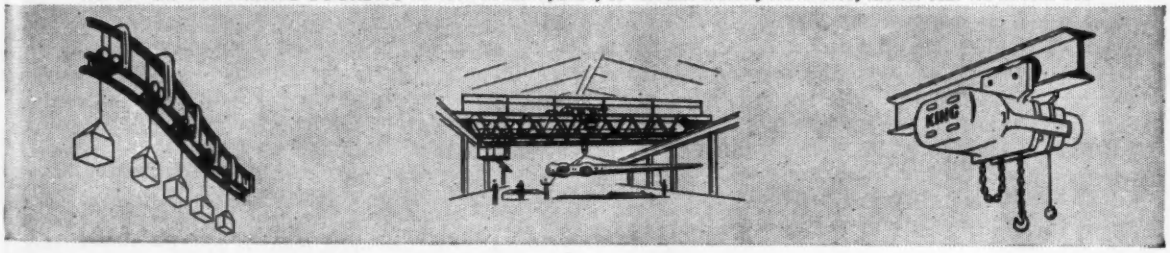

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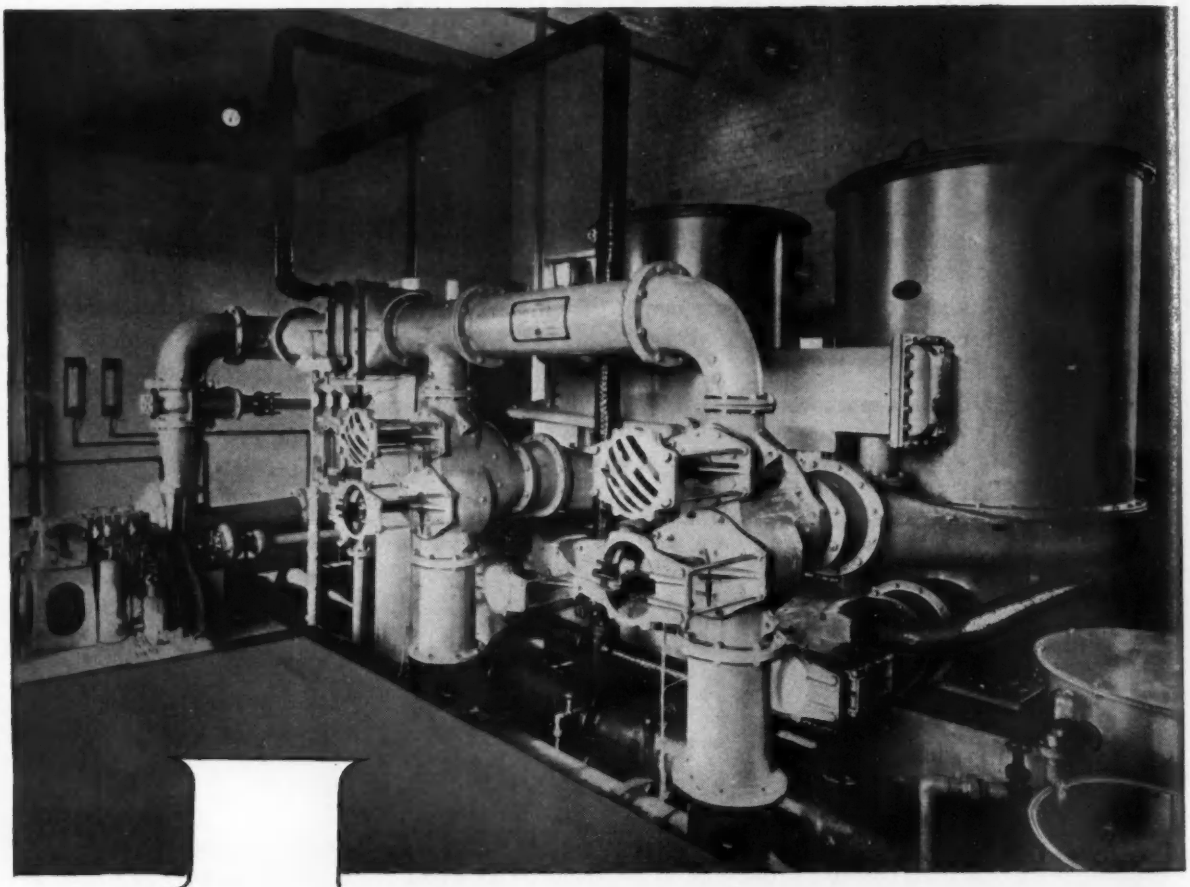

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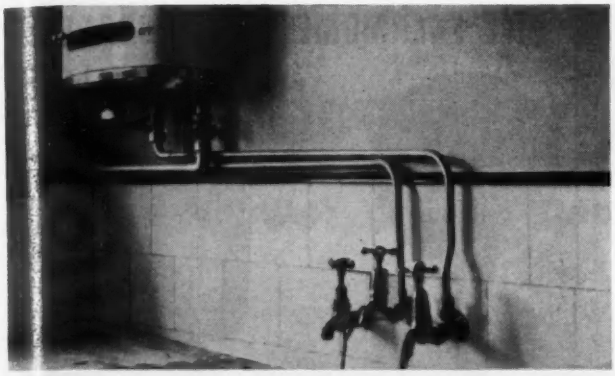

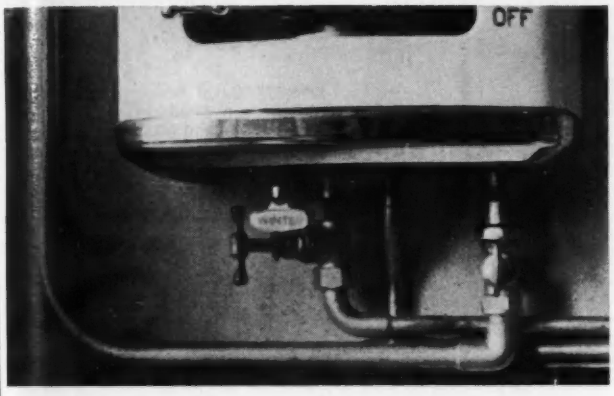

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Photographs by courtesy of The Eastern Gas Board, Tottenham Division.

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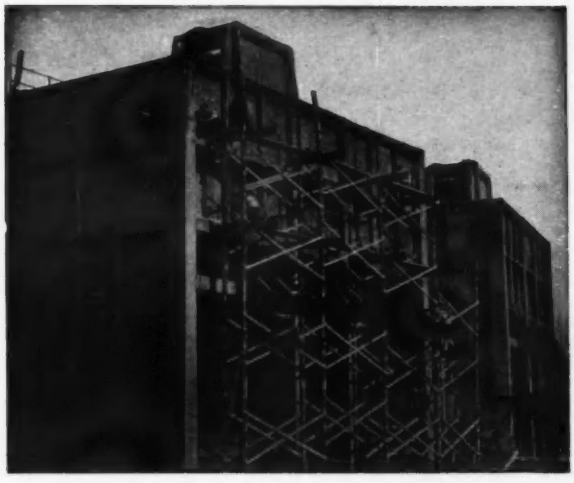

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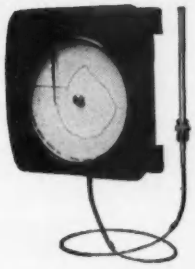

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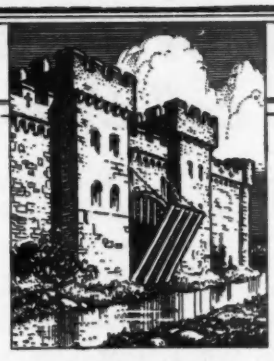

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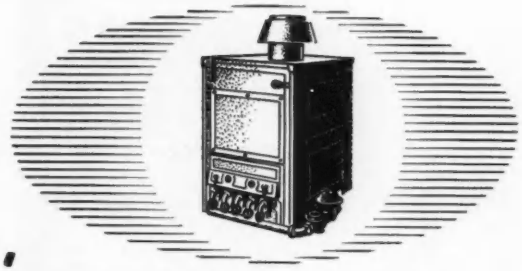

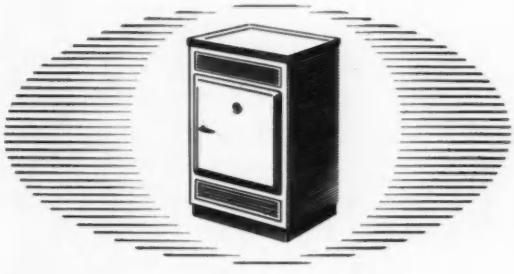

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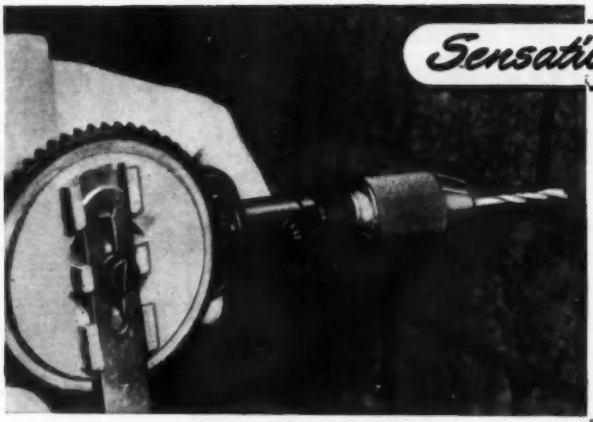

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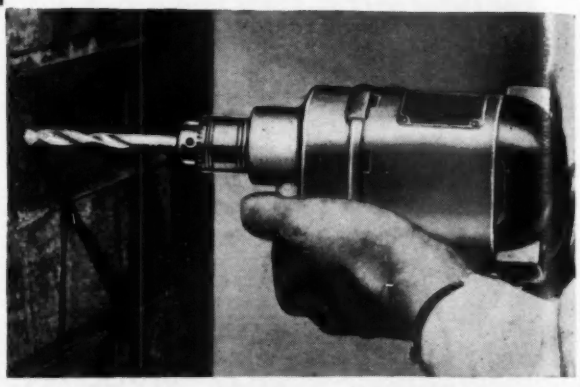

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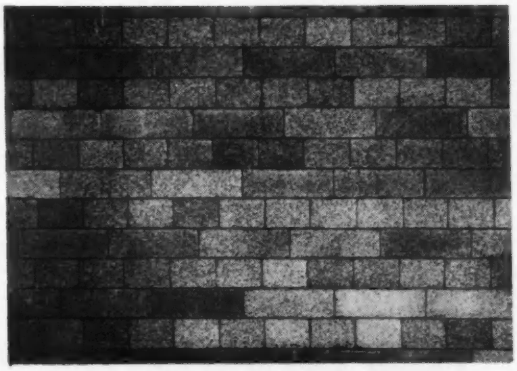

THE STRENGTH OF FURNACE BRICKWORK—and durability of the furnace lining in service is greatly controlled by the joints. Well shaped bricks of accurate size, use of a Refractory Cement correctly chosen for the purpose, combined with good bricklaying (which means thin, tight joints) gets a furnace lining off to a good start. A Refractory Cement should be selected just as carefully as the brick with which it is to be used. We are always very willing to give our advice on the best type of Cement for particular applications.

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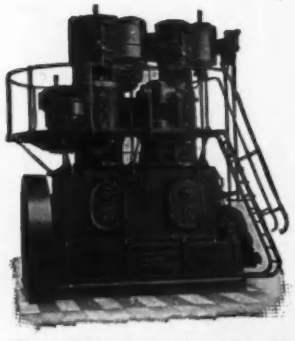
COMPRESSORS
& DRY VACUUM PUMPS FOR AIR OR GAS.

* * *



These double-acting cross-head type Compressors are provided with forced lubrication. They may be driven by any suitable power unit, as shown below, or by steam cylinders in tandem with the compressor cylinders making a self-contained unit, as shown on the left.

Single Stage. Pressures up to 40 lbs. per sq. in.
Capacities up to 10,000 cu. ft. per min.

Two Stage. Pressures up to 120 lbs. per sq. in.
Capacities up to 5,000 cu. ft. per min.

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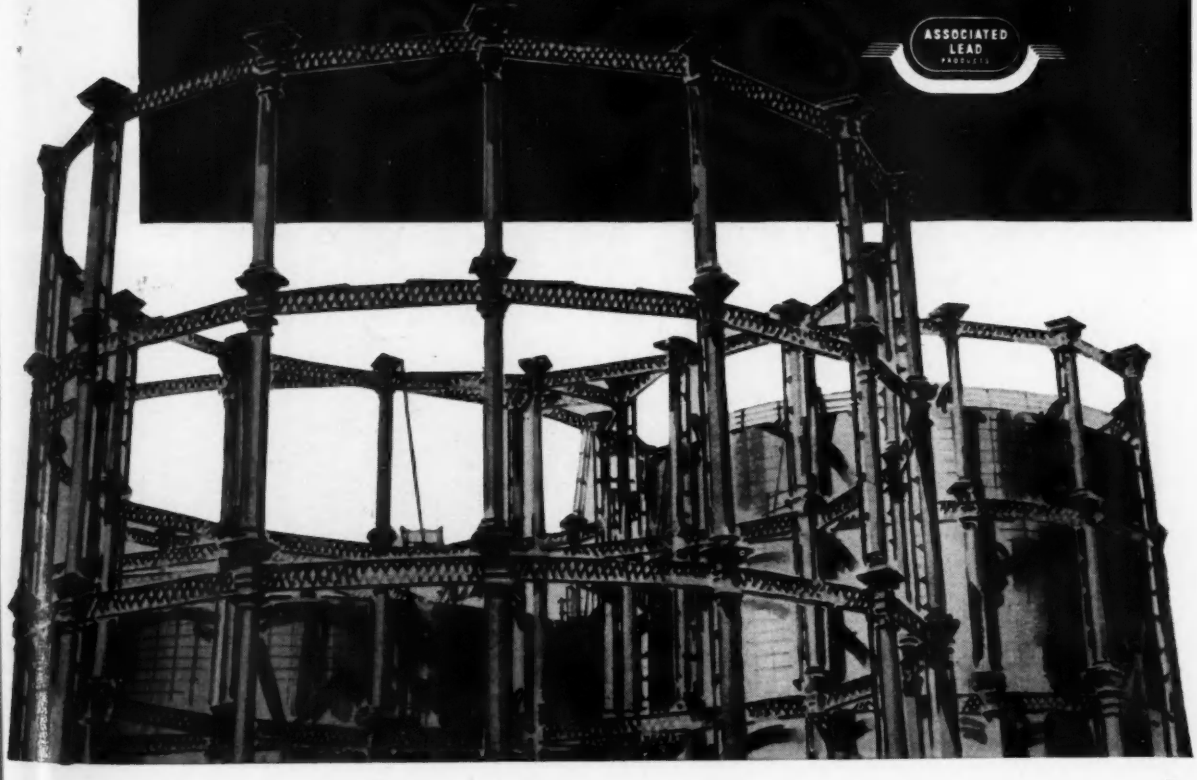

B

Wellman-Galusha Gas Producers

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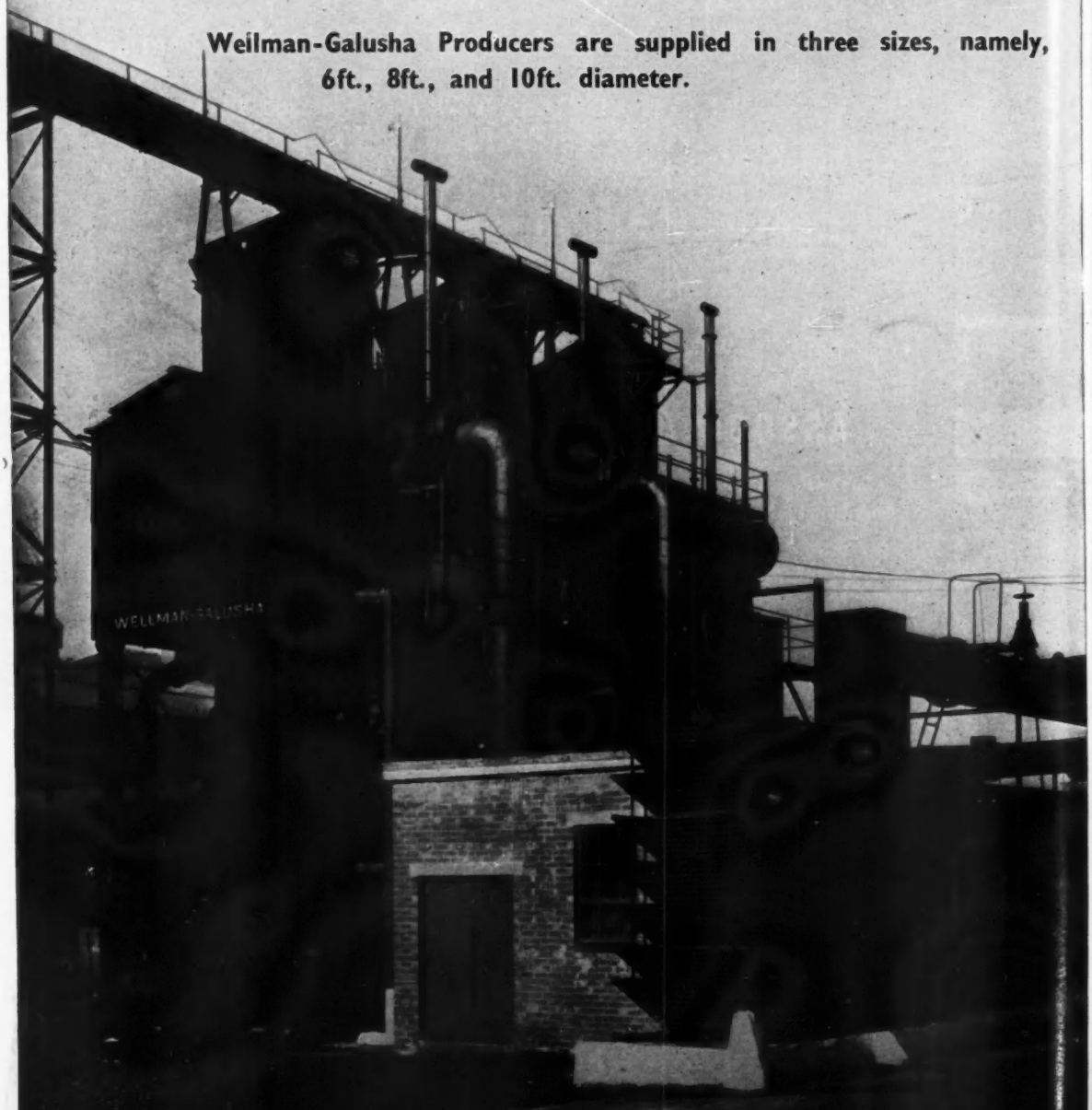
High Quality Gas from Low Grade Fuels

A battery of three 8ft. diameter Wellman-Galusha Gas Producers, equipped with fuel storage bins and Gas Cleaning Plant, for the efficient gasification of anthracite, coke or coke breeze.

Wellman-Galusha Producers are supplied in three sizes, namely, 6ft., 8ft., and 10ft. diameter.



THE WELLMAN SMITH OWEN ENGINEERING CORPN. LTD.
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Just watch a boy making sand castles...

. . . and you'll see what's meant by

FULL POWER CROWD

and why the

ONLY loader with

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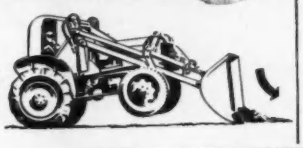
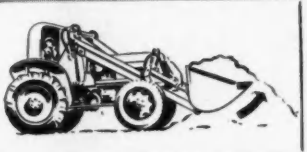
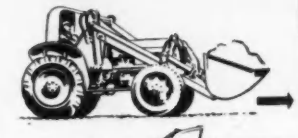


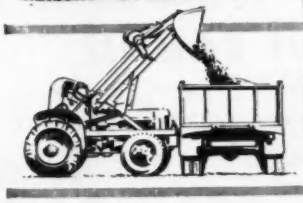
GREATER DIGGING POWER
With the bucket positively held at the optimum angle, the full power of the tractor is behind each dig. Surface stripping, levelling, and even excavating, are thus normal operations—without the cost of special attachments.



A BIGGER PAY-LOAD EVERY DIG!
The correct contours of the bucket, and the unique power-crowd action, produced by double-acting hydraulic rams, ensure complete filling at every lift, with negligible spillage.



INCREASED STABILITY AND SAFETY
The power-crowd rams hold the full bucket in the correct carrying position—just above ground level. The low centre of gravity thus obtained gives increased stability and complete safety when travelling over uneven ground.



HIGHER DUMPING SPEEDS
The double-acting hydraulic rams also ensure quick, complete discharge at any height—without the necessity for 'run-up'—(or run-back)—loads can be discharged at any height even in confined spaces.

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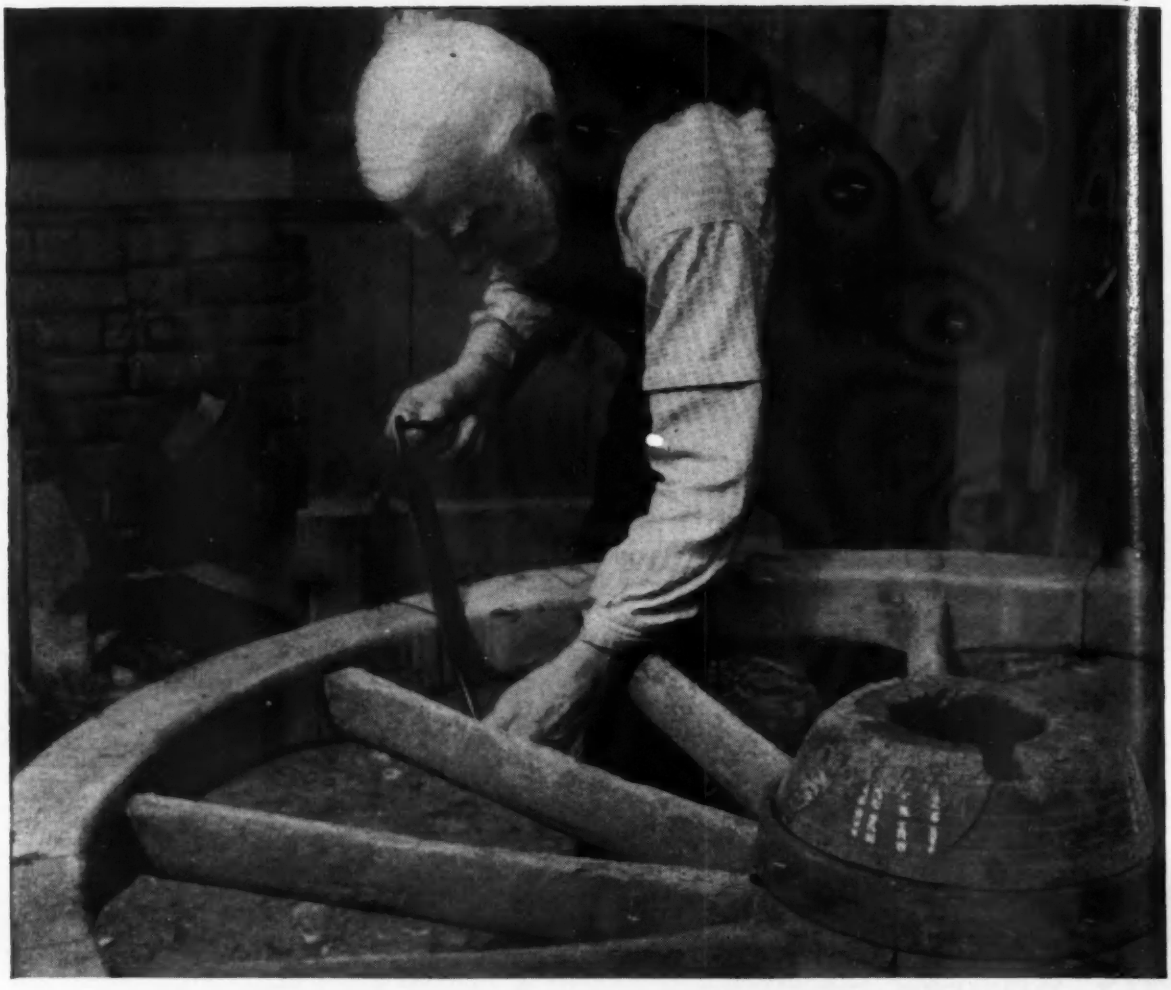

The full round

A worn wheel, an aged craftsman, a dying craft —killed by the march of progress—yet such is the spirit of craftsmanship that this wheel will be repaired with the same care and skill as if it had been the very latest creation for M'Lord's post-chaise.

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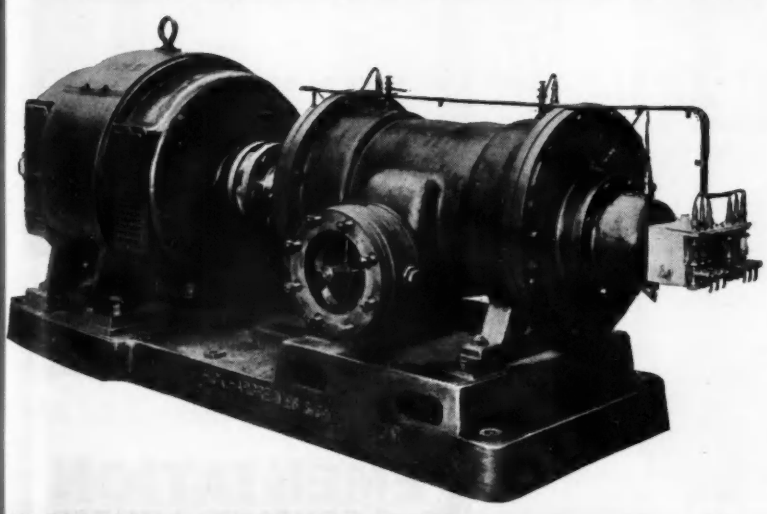

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RETENTION OF INITIAL HIGH PERFORMANCE

HICK HARGREAVES
AND COMPANY LTD BOLTON

The illustration shows an air-cooled Compressor for 15 p.s.i.g. Also available as a water-cooled machine for h.p. distribution.

H.106A

REMOVES DUST FROM ANYWHERE

REMOVES HOT SOOT AND ASH

Designed specially for GAS WORKS

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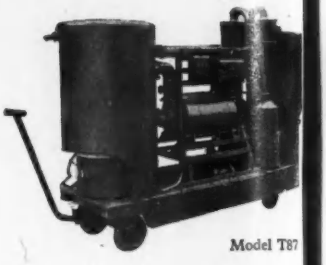
VACUUM CLEANER

Model T.87 has been specially designed to be of maximum service in gas works. It is a highly efficient, large capacity, mobile unit with a water cooled container for receiving hot dust and smouldering ashes. Can be used by up to four operators for surface cleaning.



Model T87

B.V.C. FLUE DUST REMOVAL PLANT used by: North Thames Gas Board (Beckton Nine Elms, Southall, Brentford and Stepney) West Midlands Gas Board (Birmingham) Wales Gas Board (Cardiff). North Western Gas Board (Birkenhead). Southern Gas Board (Reading). Etc. Etc.

B.V.C
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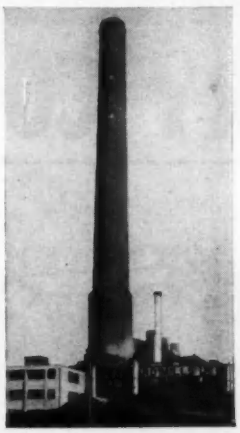
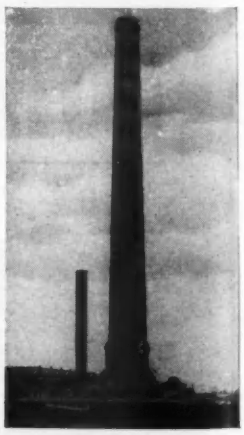
Left : Trial borings for reconstruction of Coventry Cathedral.





Two of the largest chimneys in the British Isles; on foundations of Francois Concrete Piles (left) and Francois Cementation Piles (right).

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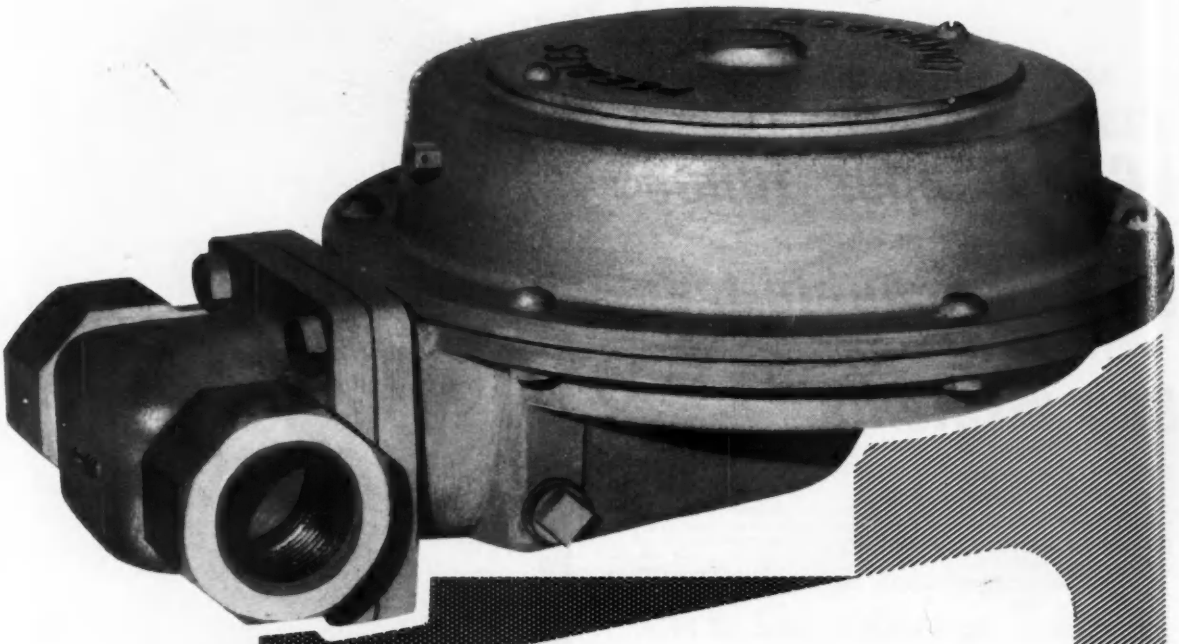

The Figure 103

HIGH PRESSURE GOVERNOR

This governor may be arranged for gas flow in any direction, either horizontal or vertical, and it is suitable for inlet pressures up to 150 lbs. per square inch, with the outlet pressure in accordance with customers' requirements. Weight loading or spring loading may be employed according to pressure conditions.

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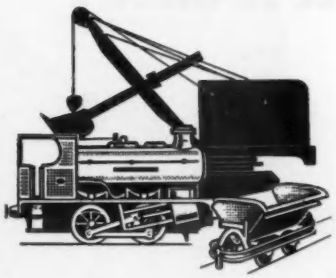

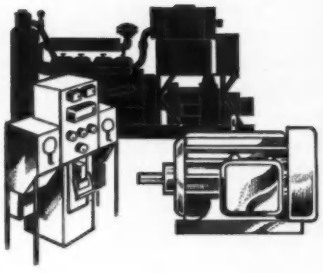

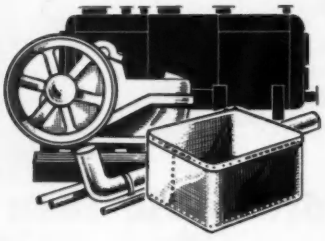

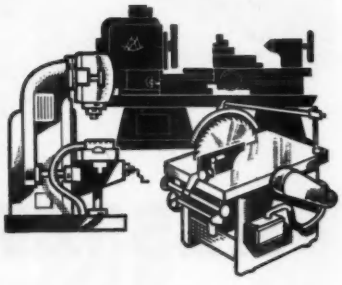

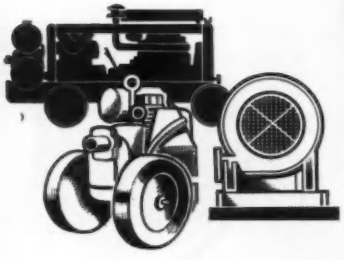

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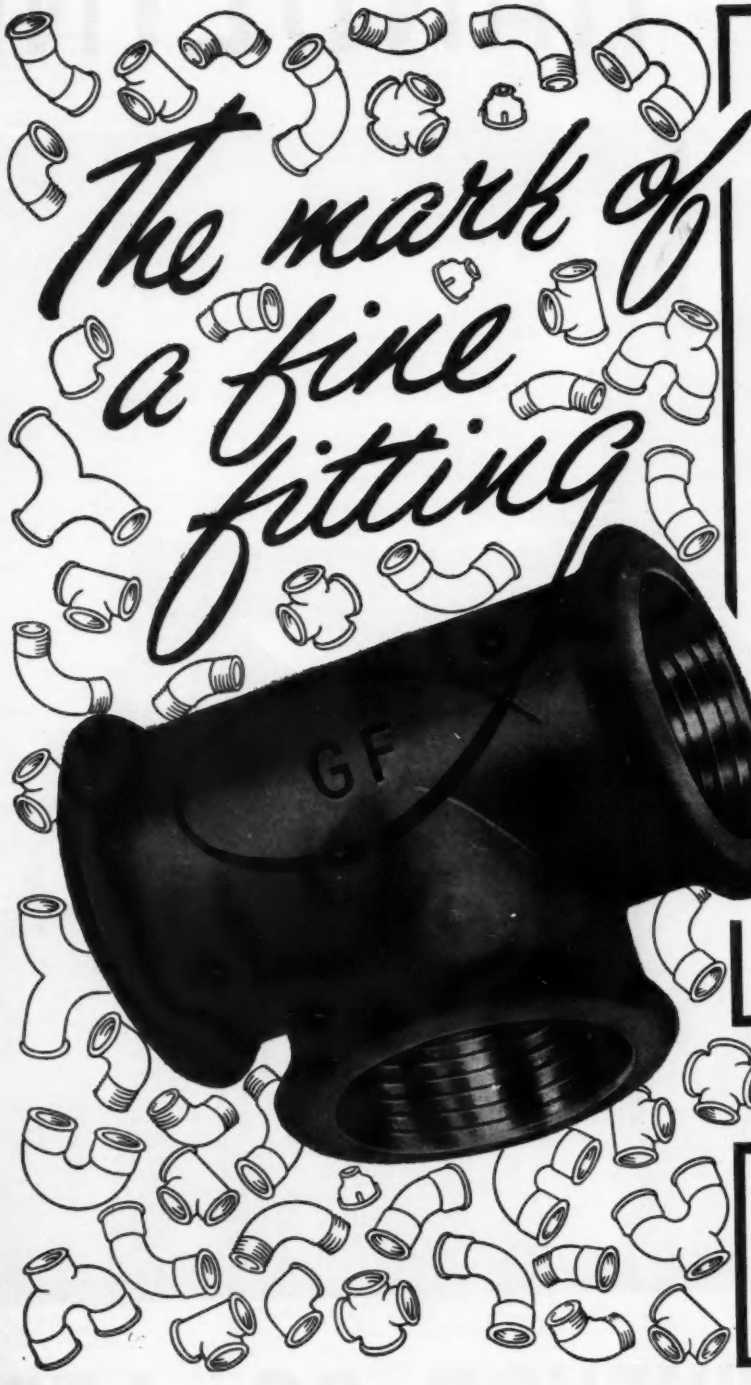

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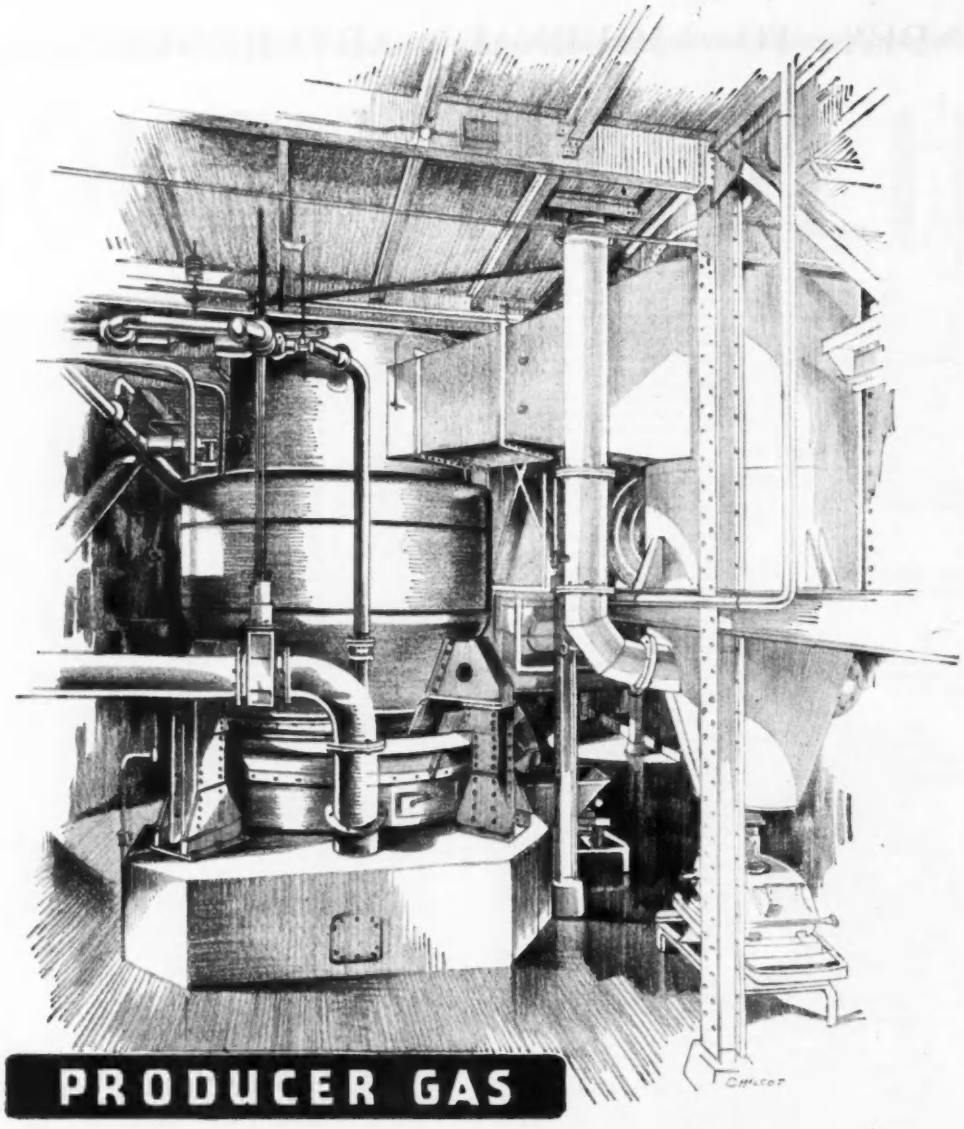

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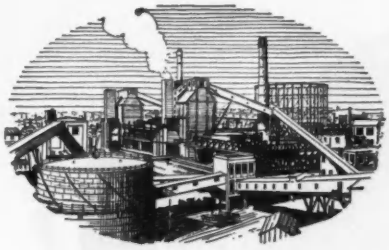

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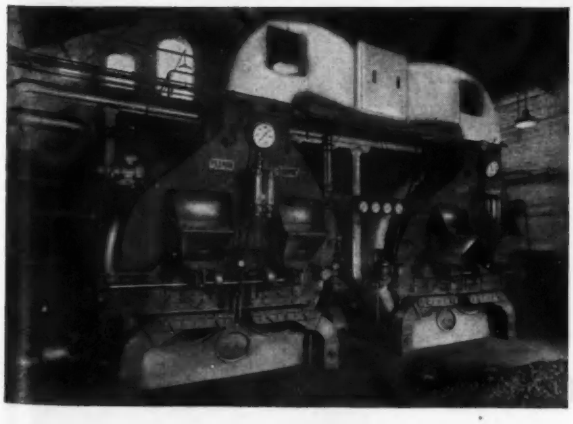

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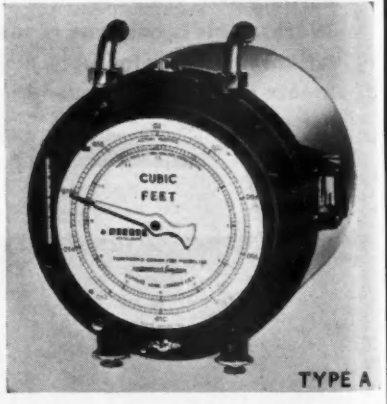

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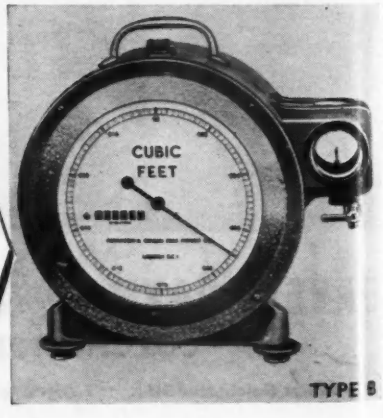

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GAS JOURNAL

VOL. 276. No. 4716 105TH YEAR October 21, 1953

ABERYSTWYTH

Editors of the Technical Press were among visitors who spent an altogether enjoyable weekend at Aberystwyth, but it was by no means a holiday. Between lunch time on Friday and church time on Sunday morning we attended six general sessions of the eighth conference of the Chairman, Board members and chief officials, chairmen and conveners of group committees, and group accountants of the Wales Gas Board, listened to 12 papers and discussions, and participated in a reception and dinner and many informal conversations. So much has already been written about the differences between the structure of the nationalised gas industry in Wales and the other 11 areas that we need not here recall the things that are 'exclusive' to Wales, but this is a fitting occasion to underline the word *eighth*. The gas industry is only halfway through its fifth year as a nationalised concern and the latest Skegness gathering was but the fourth of the East Midland Gas Board staff conferences. But Wales got away to a good start with its group committees before vesting date and for the first three years the chairmen and conveners met twice per annum. When the machinery had been well run in it was agreed that one meeting a year was sufficient and that some distinguished guest or guests should be asked to attend. On this occasion Sir John Maud, Permanent Secretary of the Ministry of Fuel and Power, not only attended the dinner but joined in the discussions, and another principal guest at the dinner was Mr. Goronwy Rees, who recently became Principal of the Aberystwyth University College.

The Deputy Chairman and the Industrial Relations Officer took early opportunity to refer to the meeting in London on Thursday under the auspices of the British Productivity Council and under the chairmanship of Colonel Sir Harold Smith, and to the resolution passed at that meeting, and they asked all present to give their support, collectively and individually, to the objects of the Council. We hope in a later issue to summarise outstanding features of some of the papers which were presented by the chief officials. In the main they were official pronouncements on administration, legislation, accountancy, manufacture, distribution, industrial utilisation, industrial relations, and coal problems, but there were some communications outside the scope of what might be termed the standard 'drill.' Chief of these, in our view, were those dealing with grid developments in North and South Wales—and especially North Wales, for the broad outline of the South Wales grid was already familiar to many. The opening of the Maelor, Wrexham, works last Wednesday, which we report on other pages of this issue, was a landmark in the development of a scheme which was first seriously visualised when the industry was nationalised in May, 1949. The South Wales grid serving the more highly industrialised parts of the country is largely based on increasing supplies of coke oven gas, but that in the north has an entirely different background. The old conception of each of the large and small coastal holiday resorts having its own gasworks and distribution system is outdated. Some of the manufacturing plants have, in fact, already ceased to make gas following the arrival of bulk supplies from other works. Others are scheduled to close down in the near future, and even some of the bigger undertakings are to be kept in commission only on a care and maintenance basis. This is happening, not because gas has lost ground or has any misgivings about the future, but for exactly opposite reasons—to promote efficiency and economy and to cope with demands which it would have been impossible to meet in any other way.

The North Wales grid, parts of which are already in being, will extend from the extreme east as far west as Bangor, and even beyond, for it is proposed to run a main across the Menai Bridge to serve Beaumaris. What is perhaps even more interesting is that the grid will be fed from three entirely different sources with three different kinds of gas—coal and water gas from Maelor, coke oven gas from Shotton, and methane from the Point of Ayr colliery. Plants at certain key points will be ready to come into operation in case of emergency, and there will be the facilities necessary to adapt the methane and the coke oven gas to town gas standards. The scheme will be immune from criticism from the point of view of putting all one's eggs in one basket. The three baskets will spread whatever risk of breakdown there may be. Mr. W. T. Hird, the Board's Distribution Engineer, described it as a 'tremendously exciting scheme and in one way the most complete

answer to integration that has ever presented itself in Britain.'

The North and South Wales grids together will integrate some 80 undertakings representing something over 90% of the total gas distributed by the Wales Gas Board, and the additional gas that will become available will call for more intensive salesmanship. Mid-Wales will, for the present, remain beyond the range of integration, but thought is already being given to possible alternatives, such as extension southwards from Llangollen and negotiations for a supply from the area of the West Midlands Gas Board. Area boundaries are not iron curtains; indeed, the Wales Board is on the best of terms with all its three neighbours—North Western, West Midlands, and South Western—and interchange of supplies of gas is by no means a remote possibility.

FUEL USAGE

None could be better fitted than Dr. Harold Hartley, Chairman of Radiation Ltd., to discuss with experience and authority the domestic appliance industry and fuel usage in Great Britain, which was the subject of his Melchett Lecture for 1953 to the Institute of Fuel on October 7 (see *Journal*, October 14, p. 133). Among his major themes was that there is little public appreciation of the advantages of using convected heat. Central heating has found little application in the home, although it is a commonplace in countries with severer climates. Dr. Hartley pointed out that Portal houses were provided with closeable solid-fuel fires with an easily controlled rate of burning, giving the advantage of reduced ventilation and the benefit of convected heat. These fires are more efficient than either the old or the modern type of grate, and their reception by the occupants raised hopes that they would sound the knell of the built-in open fire.

Little has been done to make known the advantages of using self-contained appliances giving radiant and convected heat, and progress has been hampered by the national housing policy. It is Dr. Hartley's opinion that a big effort will be needed to break down public inertia and to make people realise that the ideal heating system is really one of which the room occupants are almost unaware. It is not one that has to be the focal point of the family circle and may limit the utility of the living space provided. By making the fireplace a recess with a well-designed source of heat standing freely in the middle, a substantial improvement in efficiency is attainable without constructional complications. Merely by standing an ordinary gas fire in such a recess the heat output would be increased by 20% or more in the form of convected heat.

Another point he made—and this concerns the designing and manufacture of appliances—was that before nationalisation of the gas industry a large number of variants of products were needed to satisfy the whims of consumers. Today most of these have been eliminated, and such as now remain are of secondary importance from the production standpoint. The introduction of mass production and specialisation has been of considerable benefit to the gas-using public. Manufacturers are able to provide for those who must buy in the low-price market, cookers with a finish and standard of performance higher than were available for the high-price market 15 years ago. The significance of this change, said Dr. Hartley, is perhaps not fully appreciated by the electrical industry and may not have come within the range of thinking of the coal industry.

On the question of the significance of tenants' fixtures the lecturer mentioned that, of the 13½ mill. dwellings in occupation, only about 4 mill. are owned by, or are in the process of being bought by, the occupants; two-thirds of the householders of the country are tenants. They can be induced to purchase tenants' fixtures and to take a personal interest in the use of appliances. Also, in due course, they would buy replacements when the design has advanced enough to make further expenditure worth while. By increasing the public demand for good equipment, marked improvement in fuel utilisation will follow.

Finally, a word about approval and marketing, the view is expressed that the coal industry should not leave the responsibility for the design, manufacture, marketing, and use of domestic coal appliances so much to the appliance manufacturers and the merchants, but in its own interests should assist to a greater extent. No fuel is of use to the householder without satisfactory appliances. It should be a primary concern of the provider of fuel to help to make it possible that only satisfactory equipment will be manufactured, and, as a *sine qua non*, to co-operate with the manufacturers and the merchants to ensure that a market, which is adequate, shall be offered only good equipment.

THINGS TO COME

The honour and pleasure of being elected president of a gas association is tempered with a variety of anxieties, great and small. For many lack of experience in public speaking imposes a considerable strain and not infrequently results in the natural gifts of humour and choice of *bon mots* being screened by nervousness Many of the pitfalls of the 'green' president may be avoided with the help of a good secretary, that sterling breed to whom we owe so much. However, it is unlikely that the secretary can render much assistance with one of the president's first ordeals—the preparation and presentation of his presidential address. Immediately the question arises: What is required of a presidential address—should it be indistinguishable from an ordinary paper? Certainly many addresses fall into this category, the writers presumably deciding that they had better stick to the one aspect of the industry they know something about—their own job. Others apparently feel bound to review the association's past progress and future hopes, or outline for the benefit of the younger members—and here we are thinking particularly of a junior association—the educational facilities and opportunities open to them. Our own view is that although everyone would prefer a president to select a subject about which he knows a good deal, he should whenever possible provide his audience with something thought-provoking or with an element of inspiration, in keeping with his position as the chosen spokesman and leader of an important body.

These thoughts were prompted by listening, on October 6, to the Presidential Address of Mr. J. A. Tomes to the Midland Junior Gas Association. No one who knows Mr. Tomes and his achievements is likely to wonder at his occupying the chair this session. Recently appointed Works Engineer and Manager at Stourbridge, he enjoys an enviable reputation in the glass industry,

has been awarded both the Institution bronze medal and the Milbourne prize, and has a record of prominent service with the Association. It occurred to us that such a man might be expected to produce in his address something a little out of the ordinary. We were not disappointed, for in his address, which will be found on p. 199 of this issue, he painted his picture on the broadest possible canvas.

Taking for his subject 'Future Trends in the Gas Industry,' Mr. Tomes skimmed the cream off a score of reports and papers dealing with new developments, both fact and fiction. In this he did his fellow members a considerable service, for those in the industry who have the time and opportunity to study these reports first hand are comparatively few. The idea that the gas industry is making little headway against the current of full developments by the electricity and oil industries is by no means confined to those outside the gaseous sphere. The view is accepted with fatalistic fortitude by many within the industry whose professional stature is insufficient to enable them to look over the wall. For them Mr. Tomes' address must have come as a powerful stimulant.

Recognising that the Government has failed to propound a national fuel policy and that the gas industry must therefore continue with its effort to convince the community that it alone can make the best use of the national fuel resources of carbonising coals, Mr. Tomes pointed out that the task is becoming increasingly difficult owing to the limited availability of good gas coal and the probability that, due to increasing use being made of mechanical methods in the mines, the coal will be smaller, dirtier, and with a higher moisture content. Thus the tendency will be for the gaseous yield per ton and the carbonising capacity of existing plants to fall and the yield of coke to rise. From the problems of blending Mr. Tomes turned to gas production from oil, a practice which has become increasingly attractive as a result of the new oil refineries in this country and the apparent inability of the heavier grades of oil to command the same price per therm increase as that of coal. Mention of the Segas process and the catalytic gasification plant which the West Midlands Gas Board is at present erecting led Mr. Tomes to the experiments by the North Eastern and Wales Gas Boards with the liquified petroleum gases and to continental practice. Complete gasification, natural gas, methane from the mines, and underground gasification were also dealt with and the paper concluded with an assessment of current progress in purification, liquor and effluent, and gas supply. In this way the Tomes telescope may be said to have turned full circle and concentrated its lens, however briefly, on every major channel of development. This, as we have suggested, is a very proper function for a presidential address, since it illumines the horizons of endeavour rather than the crust of yesterday's footprints.

INCENTIVE AND THE SALESMAN

It has taken a surprisingly long time for the commercial side of the gas industry to appreciate that no matter how holy you make a gas salesman feel by assuring him that his is a high calling and his devotion to the consumer must be unsullied by any suspicion of pecuniary reward, you do not sell any more appliances. High ideals there must be—indeed, the industry has been built on them—but in the cold, competitive world in which we live, with the temperature dropping daily, death stalks the idealist unless he can temper his idealism with sound commercial practice. An unbiased observer would, we feel, have obtained some measure of amusement from watching the changing attitude of the area boards towards incentives for salesmen. The latest convert to the need for incentives is the North Eastern Gas Board, whose Chairman, Dr. R. S. Edwards, gave members of the Board's Salesmen's Circle a resounding call to arms on October 6. He announced that a sales incentive competition would be run on a half-yearly basis, the Board awarding prizes in kind of a minimum value of £150. Owing to the very varied size of the Board's selling points, some degree of flexibility would be necessary in order to run such a competition equitably for the largest and smallest showrooms, but it was planned so that no winner would receive a prize smaller in value than £20.

Later in the meeting Mr. A. McDonald, Board Member, revealed that in every new house built in the area the Board had been successful in obtaining, on the average, rather more than three points—but that only two appliances had been installed. 'We only want you to put in that one appliance,' he said, 'and the increased consumption is there without any additional expenditure by the Board.' Mr. McDonald also announced that the Board proposes to increase its allocation on local Press publicity and may spend anything up to £20,000 within the area, that a scheme of co-operative advertising with the appliance manufacturers has been negotiated, that a standard code of practice for internal servicing is being prepared, that the new display centre at Drighlington will provide for a more effective display service, and that the assistance of dealers is being sought to display and sell gas appliances. (A comprehensive article on dealer co-operation is featured in this month's *Gas Service*.) Clearly the North Eastern Board is turning on the heat, and we are glad to see the sales staffs coming into their own after their long hibernation. In this area, as elsewhere in the country, the gas salesman is likely to be an increasingly important person.

GAS JOURNAL INDEX

With this issue—the third in the quarter, as usual—we publish the Quarterly Index to the *Journal*, covering Vol. 275 (July to September, 1953). Since the early years of the war, when paper rationing rendered economies inevitable, the index has been restricted in size compared with pre-war issues. It has at last been found practicable to restore it to its former size and an endeavour has been made to enhance its usefulness by way of classification. Hitherto the index has been slipped loosely into the *Journal*, inside the front cover, whence it has been liable to fall out without coming to the reader's attention. It is now stitched into the issue, inside the back cover. Those who desire to detach it, for binding, need only open the two wire stitches, lift out the index, and re-close the stitches.

A larger portion of the new branch factory of British Jeffrey-Diamond, Ltd., at Flanshaw, near Wakefield, has been allocated to the production of scraper chains. All types of chain are being produced by mass-production methods made possible by the continued improvement in the raw materials situation. The factory, orginally a textile mill, has been re-designed and equipped, and many installations, including a series of overhead conveyors, have been introduced to overcome internal transportation problems.

Personal Notes

MR. W. E. WHITEN has been appointed Sales and Service Manager to the Nottingham undertaking in succession to Mr. Edmund Bates, who was previously Deputy Sales and Service Manager. He commenced at Nottingham in 1925 as a junior clerk and in the ensuing years held appointments in practically all departments of the sales and service section. In 1937 he became manager of the newly opened showroom at Beeston, and in 1946 was appointed special service assistant in the industrial section, following which he was appointed in March, 1953, to the post of Deputy Sales and Service Manager. Mr. Whiten's war service was spent with the Royal Air Force.

MR. W. B. BROWN has recently been appointed Managing Director of General Gas Appliances, Ltd., Manchester, in succession to MR. H. C. WILSON BENNETTS, who is now Director of Sales for Allied Ironfounders Ltd., 28, Brook Street, London, W.1. Mr. Brown was educated at Fettes College, Edinburgh, and Cambridge University, where he obtained an honours degree in engineering. He served in the Army from 1940 to 1946 with the R.A.C., and in the last three years of the war was working with the Ministry of Supply on research and design of armoured fighting vehicles. He has served an apprenticeship with G.G.A., was trained in the pattern and machine shop of M. Cockburn & Co., Ltd., Falkirk, and subsequently became Works Manager of Forth & Clyde & Sunnyside Iron Cos., Ltd., Falkirk.

MR. GEORGE DAVIES, whose appointment as Sales and Service Manager, Lincolnshire Division, East Midlands Gas Board, has already been announced, started his career at 16 as a trainee with the Barnoldswick Urban District Council Gas and Water Department, 29 years ago. After nine years he went to Coalville, Leicestershire, for two years, followed by six years with the City of Perth Gas Company. In 1943 he took up an appointment as distribution sales and service manager with the Great Grimsby Gas Company, and in 1949 at vesting date became distribution sales and service manager of the North Lincolnshire Sub-Division. When the Lincolnshire Sub-Divisions were dissolved in 1951 Mr. Davies was appointed to his position with the Grimsby Group. He is an Associate Member of the Institution of Gas Engineers.

MR. STANLEY BENNET, Managing Director of Alder & Mackay, Ltd., has been nominated for the important post of Master of the Company of Merchants of Edinburgh. Mr. Bennet, who has been Treasurer for two years, has presented to the Company a handsome gold hunting cup of sixteenth century Dutch design. It had been presented to Mr. Bennet's grandfather at the latter's golden wedding, and it is Mr. Bennet's wish that it should be known as the Treasurer's Cup, and that it should be placed in front of the Treasurer when the Company's gold plate is used at any function.

MR. C. E. MILLS has been appointed Assistant Divisional Engineer, Sheffield and Rotherham Division, East Midlands Gas Board. Mr. Mills was formerly assistant to the Divisional Engineer, Sheffield and Rotherham Division, which post he took up in January, 1951. He started as an engineering student with the Barrow-Barnsley Main Collieries at Worsborough. After war service with the Admiralty he went to the Rochdale Corporation Gas Department in 1945 as engineering assistant, and in 1950 joined the Middleton gasworks as station engineer, from where he left to become assistant to the Divisional Engineer of the Sheffield and Rotherham Division.

MR. C. HALSTEAD, Production Engineer at Leamington Spa, has been appointed by the West Midlands Gas Board as Works Engineer and Manager at Rowley Regis.

MR. E. P. HOTCHEN, M.SC., Arthur Duckham Research Student, has been appointed by the West Midlands Gas Board to the position of Scientific Officer at the Gas Research Station.

MR. W. W. SCOTT has been appointed Company Secretary to Smith Meters Ltd. Mr. Scott previously held the position of Chief Accountant, and has been with the company since 1941.

Obituary

W. M. MASON

MR. W. J. SANDEMAN writes: Under the leadership of Mr. (later Sir Francis) Goodenough, W. M. Mason was the ideal man for the job of Manager of the British Commercial Gas Association. He possessed the happy knack of keeping members together—a not altogether easy task with many of our narrow-minded friends who thought advertising was an unnecessary expense. He had a delightful personality, was welcomed wherever he went, and did a good job for the industry. It was a sorry day for the B.C.G.A. when ill health caused his retirement.

Diary

Oct. 22.—MIDLAND JUNIORS: Visit to Bryan Donkin Co., Ltd., Chesterfield.

Oct. 27-30.—Dairy Show, Olympia. Gas Council exhibit.

Oct. 27.—LONDON AND SOUTHERN SECTION, I.G.E.: Annual General meeting: 'An Accountant in the Gas Industry,' L. W. Smith; 17, Grosvenor Crescent, S.W.1, 2.40 p.m.

Oct. 27.—BRITISH ROAD TAR ASSOCIATION: Annual Meeting and Dinner, May Fair Hotel, London.

Oct. 28.—EASTERN JUNIORS: 'Education and Training' and 'Research' Sections of the Gas Industry Productivity Team Report on Visit to U.S.A.; Discussion to be opened by A. G. Higgins, Assistant Secretary, Institution of Gas Engineers, and Dr. A. Marsden, Area Scientist, S.W. Gas Board, Colchester.

Oct. 28.—BRITISH COKE RESEARCH ASSOCIATION and COKE OVEN MANAGERS' ASSOCIATION: Sixth Conference, Lecture Theatre, Royal Society of Arts, 2.30 p.m. 'Coke Formation, A Macro-Polymerisation Reaction,' Dr. H. L. Riley; 'Combustion and Reactivity of Carbon,' W. F. K. Wynne-Jones; 'Effect of the Physical and Chemical Properties of Coke on its Combustion,' Dr. R. A. Mott.

Oct. 29.—NORTH THAMES G.C.C.: Westminster City Hall, Charing Cross Road, 2.30 p.m.

Oct. 30.—LONDON JUNIORS: 'The Uses of Coal Tar and its Products,' J. R. Dewhurst, PH.D., South Eastern Gas Board; 178-180, Edgware Road, 6.30 p.m.

Oct. 30.—MANCHESTER AND DISTRICT SECTION, I.G.E.: Ordinary General Meeting, Gas Showrooms, Manchester, 2.30 p.m., preceded by luncheon at the Cafe Royal, 12.30 for 1 p.m. 'Opportunity,' J. Wilson, General Manager, Manchester Group, North Western Gas Board.

Oct. 30.—MIDLAND SECTION, I.G.E.: Autumn Meeting, Victoria Hall, Wolverhampton; 'Introduction of Electronics to the Gas Industry,' G. M. Rimmer, Electrical and Mechanical Engineer, West Midlands Gas Board; followed by luncheon and visit to Wolverhampton works of Electric Construction Co., Ltd.

Oct. 30-31.—YORKSHIRE JUNIORS: Jubilee Celebrations. Dinner, Hotel Metropole, Leeds, Oct. 30, 6.15 p.m. Visit to Rotherham, Oct. 31, 2.30 p.m.

Oct. 31.—SCOTTISH JUNIORS (WESTERN): Afternoon Visit to Dawsholm Gasworks, Glasgow.

Oct. 31.—WALES JUNIORS (NORTH): Inspection of welded gasholder and housing estates, Llangefni; 'The Accountant in the Gas Industry,' G. A. Edwards, Internal Auditor, Wales Gas Board.

Nov. 3.—EAST MIDLANDS G.C.C.: Victoria Station Hotel, Nottingham, 11.30 a.m.

Nov. 6.—SCOTTISH JUNIORS (WESTERN): 'Compressors, Boosters, and Governors,' B. W. Fowler, Bryan Donkin Co., Ltd. Royal Technical College, Glasgow.

Nov. 7.—SCOTTISH JUNIORS (EASTERN): Visit to Howdon-on-Tyne Gasworks Northern Gas Board.

Nov. 11.—MANCHESTER JUNIORS: Visit to Drakes, Ltd., and J. Morton, Ltd. Halifax.

Nov. 12.—YORKSHIRE JUNIORS: Visit to North Gawber Colliery, near Barnsley followed by tea at Miners' Welfare Centre.

GAS INDUSTRY EFFICIENCY

A Joint Conference on Efficiency in the Gas Industry was held by the Gas Council at Film House, Wardour Street, London, W.1, on October 15, between the Gas Council, the area boards, and trade unions representing employees in the industry. Colonel Sir Harold Smith, Chairman of the Gas Council, was in the Chair.

THE CHAIRMAN said it was the first time they had ever had a meeting in the gas industry between representatives of the Gas Council and the area boards and all the trade unions representing the employees in the gas industry. He felt it to be a great privilege to preside at such a meeting and he offered those present a hearty welcome. They had met to see whether there were any steps which they could take to play their part in achieving greater prosperity in the country, greater efficiency and, perhaps above all, a reduction in the price of gas.

As a result of her tremendous and self-sacrificing efforts in two world wars, Great Britain had been drained of her overseas investments, had fallen into debt, had seen the value of sterling as an international currency lose its pre-eminent position and had had—and was still having—an uphill fight to maintain her position in the markets of the world. That was a story they had all heard. They knew, too, that it was absolutely essential to the preservation of our standards of life that the country should be in a position to pay its way and show a surplus in the account of its trade and payments with other countries. It was to enable Britain to trade successfully with other nations and to achieve this result that increased production was needed.

In this country, as in all other industrialised communities, the keystone of efficient and successful productivity was the fuel and power industry which supplied heat and energy to factories and homes. This was particularly apparent in Britain, coal being her most important indigenous asset. Oil used for power or industrial processes had to be imported. The product of our mines was the primary source of energy, whether the coal was used in its raw state or processed to make more refined fuels such as gas or electricity.

Coal, however, was not inexhaustible. It was a wasting asset and we were living on our capital. We must use that asset with the greatest possible efficiency and economy.

In the gas industry they claimed that the most efficient and economical way of using coal was to carbonise it at gasworks or coke ovens. When coal was burned in its raw state in open fires, the greater part of its potential heat value was lost up the chimney. On carbonisation, however, coal yielded from 70% to 80% of its potential energy, not only in the form of two labour-saving smokeless fuels—gas and coke—but also as tar and other valuable tar by-products which were the raw materials for the manufacture of thousands of everyday articles. Whole industries had been built on these derivatives of coal—such industries as plastics, aniline dyes, drugs and chemicals, paints and varnishes, fertilisers, insecticides, disinfectants. Carbonisation was the only method of using coal which preserved those essential products. Moreover, gas and coke could do many tasks with a higher thermal efficiency and a greater economy than could raw coal.

Contribution to National Resources

The gas industry was making a most important contribution to Britain's national resources. Last year over 27½ mill. tons of coal were carbonised in gasworks and the gas industry produced 2,400 mill. therms of gas, 15 mill. tons of coke and breeze, two mill. tons of tar, 160,000 tons of ammoniacal liquor and 28 mill. gallons of crude benzole.

At present the gas industry in Great Britain supplied over 12¼ mill. consumers, of whom over 11¼ mill. were domestic, the remainder being industrial and commercial. The gas industry's activities touched upon every section of the community. There could be few families in districts served by gas mains who did not make use of gas for cooking or for some other household needs. In factories, the use of gas entered into nearly every production process. It was piped right up to the point of use, space for fuel storage was eliminated and very close control of furnace temperatures and atmospheres was achieved by automatic means. Working conditions were improved by the reduction of heat, smoke and dust.

Nevertheless, large as were its potential demands for gas, industry could take full advantage of the services offered only if gas were competitive in price with other fuels. The gas industry had no control over the price of its principal raw material, coal. The price which it was compelled to charge for gas, both to industrial and to domestic consumers, must depend in the first instance on the price it had to pay for its coal. Apart from that, it could take certain steps to keep down the cost of gas supply by increasing the efficiency of production and distribution. The Chairman said the conference was being held to consider how best they could achieve greater efficiency in the gas industry and thus help towards greater efficiency of fuel usage in industry generally throughout the country.

The gas industry did not easily lend itself to increased productivity by such measures as production bonus schemes. Gas-making could not be compared with the work of a factory turning out a number of specific products every day. The Chairman believed that if they were to secure the best results from their work it was essential that everyone, from the management down to the newly-joined apprentice, should have a clear appreciation of the duties allotted to them.

Speeding up Integration

Since May 1, 1949, when the gas industry was nationalised, the policy of integration which was being developed had been continued and speeded up. Small and uneconomic production units had been closed, their functions being transferred to larger works, a number of which had been reconstructed and modernised. During 1952-53 area boards had put out of commission gas-making plant of a total daily capacity of 200,000 therms and had installed and brought into operation plant capable of producing a daily total of 500,000 therms of gas. The net increase in the daily gas-making capacity of the whole industry was in the region of 3%, and the area boards had further extensive schemes of plant improvement in hand. Although steel was now more freely available, the rate of progress was still likely to be retarded by limitations on permitted capital expenditure.

The closing of works was not due to decreases in the sales of gas. Taking the country as a whole, the demand was now about 15% higher than in the last year before nationalisation. Over this same period. however, the cost of the materials for gas-making had increased considerably. This was particularly marked in the case of coal. Coal today cost the gas industry three times as much per ton as it did in 1938. The area boards had not passed on to their consumers all the additional charges they had had to meet. In fact, the average price of gas today was only 75% more than it was in 1938, compared with the increase of three times in the price of coal.

By integration, by reconstruction of plant and by improvements in the efficiency, of gas-making processes, the industry had itself been able to bear some of the increases in the cost of raw materials. For instance, the average yield of gas per ton of coal carbonised over the whole industry in the year 1950-51 was 71.62 therms. During the last financial year, 1952-53, this rose to 73.65 therms per ton. This represented a reduction in terms of coal carbonised of 770,000 tons in a year. This saving was due to increased efficiency in working and not to

any improvement in the quality of coal supplied. Indeed, one of the important problems which were causing them concern at the present time was the growing shortage of coals which were best suited for carbonisation. They were informed that many of such coals were being used in industries where different types of coal, types which were far more freely available, would be equally useful. They were hoping that the National Coal Board would be able to transfer some of these coals from general industry to the gas industry in due course.

Diminishing Coal Availability

At the same time, the total availability of such coals was undoubtedly diminishing. This had led the gas industry to inquire into methods of gas-making which might use types of coal which normally would not be carbonised in orthodox gas-making plants. Research was being carried out into the complete gasification of coal by the use of high pressurue steam and oxygen. This work was being done at the Birmingham Research Station of the Gas Council. While the results of this research to date did not indicate that the processes being investigated were likely to result in a lower manufactured price of gas, nevertheless if they proved to be commercially practicable it might be possible to use types of coal which at present were quite unsuitable.

Low pressure complete gasification processes had been improved and were being successfully operated in France and Italy. It was hoped that shortly a plant of this type would be erected at one of the works of the North Thames Gas Board and that, apart from playing its proper part in the supply of gas for that area, it would be most valuable for supplying information about the possibility of using different types of coal. At the same time, the Gas Council was considering, with the National Coal Board, the possibility of blending different qualities of coal, with the object of making these into suitable raw material for carbonising.

They were also considering the distribution of gas made from products other than coal. In the areas of the Wales Gas Board and of the Eastern Gas Board many consumers were now being supplied with butane/air mixtures through the normal distribution systems. The butane for these mixtures was a product of the oil refineries.

Another source of supply which was being developed in collaboration with the National Coal Board was that of methane drained from mine workings. Methane was already being drained from mines in Cumberland and used for the purpose of town supply, and a similar supply was likely to be available shortly in North Wales. The use of methane not only meant the saving of coal, but also its removal from the mines resulted in better and safer working conditions underground. A new source of gas supply was the use of chemical and oil refinery tail gases as a blending or enriching medium for town gas. Such gases were already being used in the Merseyside area and were likely shortly also to be used in Wales.

As another means of saving coal the possibilities of gasifying oil were being investigated, but perhaps what would appeal most to many people was the arrangement which the Gas Council had made with the D'Arcy Exploration Company, Ltd., to explore the possibility of finding natural gas. This decision was taken some months ago after they had received a report from the chief geologist of the Anglo-Iranian Oil Company, Ltd. They were very encouraged in the decision they had taken on reading the report of the Anglo-American Productivity Team which inquired into the gas industry in America.

Prospecting in Britain

The Chairman said they had probably all seen that report and would remember that after calling attention to the fact that in America well over 90% of the gas supplied was natural gas, the report said that 'although there are no appreciable known reserves of natural gas in Great Britain, a discovery of any magnitude would be of immense value to our national economy, and it is suggested that prospecting, where there is any possible hope of success, should continue to receive vigorous support.' What the success might be, of course, they could not tell, but should they be successful the advantages accruing to their consumers might well be considerable—and not only to the consumers but to the whole national economy.

Much work had been done to improve appliance efficiency. The modern domestic gas cooker should now require only three therms and the gas fire 3½ therms to do the same work as called for five therms in the corresponding appliances of three decades ago. In other words, whereas in 1900 5½ lb. of coal were required to make the gas to supply the cooking requirements of an average family—which worked out at 3.7 persons—for one day, by 1934 this figure had dropped to 4.2 lb. and by 1951 to 3.3 lb. That was a drop of from 5½ lb. to 3.3 lb. between 1900 and 1951.

Apart, however, from what could be achieved by research or closer scientific control, increases in the efficiency of production in the gas industry must mean one of two things: either the same number of workers must produce more gas or the same quantity of gas must be produced by a smaller labour force.

So far as the future was concerned, it should be borne in mind that the gas industry was an industry capable of considerable development, for it was not only a public utility service supplying a convenient fuel to the community but it was also a chemical industry producing and disposing of raw materials of increasing national importance. As long as they could produce gas more cheaply—in comparison with alternative forms of fuel—but only for so long—the industry was likely to prosper and develop. There should be little likelihood of any serious overall redundancy of labour as a result of measures taken to increase the efficiency of working. In a growing industry and with normal wastage they should be able to absorb workers who might otherwise be redundant. It was true that redundancy might occur on a local basis as efficiency was increased and as integration developed. It might, of course, be necessary in some cases to ask employees to transfer to different parts of an area. This might well be one of the effects of integration, but in the event of employees being considered redundant the area boards concerned were always willing to consult with the trade unions as to the procedure to adopt to deal with the problem—as, indeed, they had already done.

Joint Consultative Committees

The Chairman said he had outlined some of the things which were being done by the management to promote cheaper and more efficient gas production and use. There were, however, many more ways in which those in the gas industry, both on the management side and on the employees' side, could improve efficiency of production and distribution. While in certain areas bonus schemes had been introduced under local arrangements to cover individual cases, he thought it would be generally admitted that, by and large, the system of payment by results was not applicable to the gas industry. Should they not, therefore, use every occasion to encourage everyone at local level to appreciate the fact that they were vitally concerned in the prosperity of the industry which found them employment?

This was a problem for management just as it was for employees. One way of doing it was through the joint consultative committees which in some parts of the country might be considered an innovation although, of course, in others they had existed for many years. These committees could play an effective part in raising efficiency by increasing mutual confidence between the representatives of management and those of the employees. If, on the one hand, the management at local level felt that the full use of joint consultative committees was likely to interfere with its own authority, then the results of the working of those committees would fall far short of what might be achieved. On the other hand, if employees used these committees merely as a means of airing grievances their efforts might well be fruitless.

As the Chairman saw it, their problem at national level was to encourage the joint consultative committee in every way they could to be really effective units—an

not just machinery for dealing with complaints—so that all problems could be discussed in a helpful and co-operative spirit.

Efficiency Examples

There were many ways by which efficiency could be increased. Some of those might of themselves seem small, but the cumulative effect might well be worth while. For example, in the retort house the work consisted of a series of operations carried out by a number of men in a definite sequence. The efficiency of production could be increased if each man carried out his instructions faithfully and performed the tasks allotted to him at the proper time and in the proper order. He was more likely to do this if he had some knowledge of the improvements likely to result from his careful attention to detail. Again, on the district, the cost of fixing appliances in consumers' premises could be reduced if walking time were cut and less time was taken in the issue and collection of stores. When fitting appliances on consumers' premises, a gas fitter could assist considerably in the saving of fuel if he saw that the gas appliance was working at its maximum efficiency.

Good ideas were the prerogative of no one person's brain. Everyone should be encouraged to make suggestions for the more efficient functioning of his undertaking.

Fundamentally the gas industry had an important part to play in the provision of vital fuel services to the homes and industries of Great Britain. It could continue properly to play that part only if its economy was sound. To ensure this, high efficiency of production and distribution was an urgent necessity. They could all help to promote that efficiency, and the Chairman hoped that the conference would materially forward their endeavours.

The Chairman said he had a number of very senior trade union representatives with him on the platform and he was very grateful for their support. They were: Mr. Jack Tanner, whom they congratulated on being elected Chairman of the Trades Union Congress; Mr. W. E. Webb, Vice-Chairman of the National Joint Council for Gas Staffs; Mr. H. Kelly, General Secretary, Plumbing Trades Union; Mr. Tom Williamson, Vice-Chairman of the National Joint Industrial Council for the Gas Industry; Mr. H. G. Brotherton, President of the Confederation of Shipbuilding and Engineering Unions; and Mr. G. H. Lowthian, General Secretary of the Amalgamated Union of Building Trade Workers.

Maintaining Standard of Living

Mr. T. Williamson, C.B.E., J.P., Vice-Chairman of the National Joint Industrial Council for the Gas Industry, congratulated the Chairman and his colleagues on having convened the conference. The desire for efficiency in British industry, he said, would not lead to a localised benefit for any particular section; it was a question of maintaining in this country what he regarded as a fairly high standard of living, by comparison with standards of living in the world, and of maintaining and safeguarding the social services which they had built up over the last few years and which were the envy of the world.

Mr. Williamson said he thought they would all subscribe to this drive for efficiency. The gas industry was under public ownership; there was no question of private profit, and any benefits would accrue not to a particular section but to the whole nation. Moreover, it was a basic industry. If they continued in the even tenor of their ways without improving their methods, that inefficiency and all it meant would percolate right through British industry.

It was no use pretending that nothing could be done, that they were efficient and that there was no room for improvement. There was plenty of room. He hoped the conference had not been assembled merely to express pious opinions and then to go away and forget them. All of them, no matter what their responsibilities in the industry, should do all they could to improve efficiency.

Mr. Williamson had been particularly pleased to hear the Chairman emphasise that, while there would be disturbances and while, as works were closed down, men who worked in the industry—management or workpeople—might see their living jeopardised, there was nevertheless an obligation on the industry to do all they possibly could to safeguard the livelihood of those who might be so unfortunately placed. He thought that if they applied their minds to the problem they could minimise the disturbance and the distress caused. He gave the substance of the proposal which he trusted they would carry at the end of the proceedings.

Mr. Williamson said Parliament and the will of the country had decided that the gas industry should be placed under public ownership and, whatever their political opinions, now that they had undertaken this great experiment they should all do everything possible to make it a success, not only for the benefit of those engaged in the industry but for the benefit of the nation and as a contribution towards the maintenance of the standard of living.

Gas Staffs' Loyalty

Mr. W. E. Webb, Vice-Chairman of the National Joint Council for Gas Staffs, said he seconded the resolution as the representative of the joint staffs in the industry after it had been proposed by Mr. Wilkinson as representative of the manual workers in the industry. The efficiency of the industry was of vital concern to them all. At no time had any aspersion been cast upon the staff or the workpeople in the industry suggesting that they were disloyal or were indifferent to the efficiency of the industry in which their interests and welfare, that of their dependants, and the interests of the consumers were so much concerned. They had carried from private enterprise into the nationalised industry a loyalty almost unequalled in any other industry in the country.

They were asked to subscribe to increased efficiency in the industry, and one method by which it was suggested they could make a profound contribution was the use of consultation throughout the industry, from the top level to the bottom. It might be that some people had reservations and inhibitions arising from what had happened locally in the past, but they could be sure that if there was full understanding and mutual co-operation between management, staff and workpeople, they must achieve the desired result.

The Chairman and the Gas Council were to be congratulated on a bold innovation. This was the first time in any industry that a measure of consultation of this description had been attempted. He was sure they would all agree with him when he said it was something they had always wanted. No one could deny that today we were up against things in a way we had never before encountered. There were difficulties nationally, at area level and locally such as they had never previously experienced. But the suggestion which Sir Harold Smith had made on behalf of the Gas Council would overcome those difficulties if it were loyally supported. They were proud of the industry. It had been popularly described in the Press as an 'old and perhaps dying industry,' but the facts and figures at their disposal refuted that description. Indeed, the industry was today making greater progress than ever before and it looked forward to a time when even greater progress would be made. But, in view of the difficulties, that could be accomplished only if they were marching in step.

In the main, we were dealing today with people who were better informed and better educated than in the past, and if we took them into full confidence they would give adequate support.

They had no doubts about the future of the gas industry. The Gas Council and the Chairman were to be congratulated and complimented on their innovation which would promote the prosperity of the industry, to the mutual benefit of the gas consumer and those employed in the industry. On behalf of the national gas staffs throughout the country, Mr. Webb could say they were fully and absolutely prepared to support the step taken by the Council because they believed it was a great step in the right direction. They would do their utmost to see that these ideas were brought to fruition.

Mr. H. Kelly, General Secretary of the Plumbing Trades Union, said no one, particularly from the trade union side, could quarrel with the idea of added efficiency in the gas industry, especially as it was a nationalised industry and the benefits would go to the consumer. Equally, no one could quarrel with the idea of production committees and consultation as long as they were consultative committees and not merely committees at which somebody would tell the trade union side what they were going to do.

The resolution and the terms of the discussion were new to all of them, but, equally, no one could object to them provided that every interest in the gas industry was consulted before any changes took place affecting the membership of the union concerned. That was a very important point.

Mr. Kelly hoped that as a result of the conference other conferences would be called at district and local level throughout the country at which joint co-operation could take place. Speaking personally, Mr. Kelly thought the idea put forward was a laudable one which would redound ultimately to the benefit of the community at large, provided there was co-operation between management and unions at all levels. Provided there was that co-operation, nothing but good could flow from the resolution, which he supported.

Mr. G. H. Lowthian, General Secretary of the Amalgamated Union of Building Trade Workers, said the Gas Council was to be congratulated on having approached the problem of production and efficiency from what the trade union movement considered the right angle, by asking for co-operation and seeking assistance rather than endeavouring to impose changes upon the industry without consultation.

Address would 'Allay Fears'

Sir Harold's address in introducing the subject would do much to allay the fears which existed in the minds of some present. When thinking of improving efficiency or rationalising an industry, probably the most vital thing they considered was 'What is our stake in the industry?' In his address Sir Harold Smith had indicated that they would have an opportunity of consultation and of advising, not only at national level. To restrict it to the national level would be a mistake. They were condemned in many walks of life because they had developed on national lines, with no freedom of aim or thought left to the locality. Here they were endeavouring, as far as they could, to see that in every locality there was an opportunity for all engaged in the industry to express their opinion.

If that mutual trust and understanding could be encouraged from the beginning, there would be a greater opportunity of achieving the aims of the Conference. Mr. Lowthian recommended the conference unanimously to support the resolution, which merely asked them to give consideration to the question of improving efficiency in production.

Trade Unionists' Different Outlook

Mr. H. G. Brotherton, C.B.E., President of the Confederaton of Shipbuilding and Engineering Unions, who said he was glad to support the resolution, added that when first invited to attend the conference he indulged in some self-analysis to see what were his qualifications to talk of efficiency in production. He was happy at the beginning because he remembered that before he became idle in what some might think a life of uselessness, he worked for an establishment which produced gas meters, the precision instruments upon which the prosperity of the gas industry was founded. Then he remembered that that was in the past and that for many years he had been a negotiator of better standards of living, better wages and better conditions; and he began to wonder how often he had reached 100% of the target which his constituents expected him to hit. He had come to the conclusion that on many occasions he had not been much of a production expert.

Those on the platform who were not gas industry experts could talk only in general terms and approve only in general terms. It was true to say that those whom they represented —trade unionists working in the gas industry—had a different point of view about production and efficiency than was the case some time ago. They had had the opportunity of years of full employment, which had caused them to forget to a large extent the terrible old times when increased efficiency and better planning so often planned them into the unemployment queues. They realised now that not only had they comparative security of employment but that it was absolutely necessary that the country as a whole should increase its production in any and every way.

There was no question about what their attitude was, because that colourful picture of the British trade unionist idling slothfully during the hours he was supposed to be working was a slanderous thing. Mr. Brotherton knew most about the engineering industry, and if they remembered that since 1946 the engineering industry had increased its production by over 50%, it was obvious that the picture of slothfulness was not a true picture.

The people in the gas industry, as well as those elsewhere, would respond to all sensible approaches. In that connection, they would have two points in mind, one of which had been stressed by the Chairman and mentioned by all subsequent speakers—the importance of consultation. Obviously, in the gas industry they would get consultation, not meetings between the management representatives and workpeople at which the management representatives made it plain at the outset that, although they were prepared to listen, they already had in their minds a detailed plan of what they proposed to do. That was not consultation; far from it. Mr. Brotherton said he would lend his fullest support to the proposal and to the desire to see a 100% efficient gas industry.

Flexible Consultative Machinery

Mr. J. Tanner, Chairman of the Trades Union Congress, said he wanted to speak on rather broader terms than his colleagues. It was interesting to note that five of the six people on the platform were trade unionists. He had recently been appointed Chairman of the T.U.C., and he had still to be clear about when he was speaking as Chairman and when he was speaking as President of his own union. There was such an instance not long ago.

Mr. Tanner was glad that the previous speakers had wholeheartedly supported the resolution, and he thought he could go a little further than Mr. Lowthian who had suggested it was merely 'asking for consideration.' This was the policy of the whole of the trade union movement—that there should be improved efficiency and that there should be general consultation. What they wanted was full and frank consultation between management and labour. It was not just a question of having machinery; they had set up the machinery—their consultative committees—and it was not simply a matter of using it formally and rigidly. The machine had to be flexible: both the trade union side and the management had to approach it in the way which would give real consultation. They had to approach it with a common objective in view. They all knew that with greater efficiency in the industry they could reduce the price of gas and of the other products of the gas industry and bring benefit to the workers in the industry and the whole community.

The charges could be levelled against both sides. They should be frank about it. In the trade union movement they, too, had their prejudices and their traditions, and customs and practices had developed over the years when the industry was under private ownership. Those prejudices also existed on the management side. There was the tradition of their managerial functions—the tradition, 'We are the bosses and what we say must go.' That might be true in the ultimate, when the final decision was taken, but that final decision would be more readily acceptable if there had been consultations and discussions between work people and management at all levels.

The Smaller Undertakings

Mr. Tanner said he understood there were difficulties in some areas where there were small undertakings and a small number of workers, where it was not thought necessary to have a joint consultation committee to cover a few workers. He thought steps should be taken to bring in such a small group of workers, wherever they were, so that their point of view could be expressed and considered with those of the remainder in the larger undertakings.

Mr. Tanner instanced the attitude of some of his members, who in the main were the maintenance workers in the industry. There had been many complaints about the situation, and not only in the gas industry, a couple of years ago. In the other nationalised industries they had then felt dissatisfied. They had expected that as a result of nationalisation there would be a complete change in the attitude of management, that there would be improved conditions and that everything would be entirely different in a few months—indeed, that everything would be much better from their point of view. They now knew that that could not happen and that, with the reorganisation which had to take place, it was some time before these improvements could be made. Mr. Tanner said he would speak quite frankly to trade union members: there had been too much grousing and not enough constructive proposals put before the management. He hoped that as a result of the Conference and the function of the joint committees and consultative committees, as they were established and put into working order, there would be a tremendous improvement in the efficiency of the industry which would benefit the whole community and not least those who were employed in the gas industry. On behalf of the T.U.C. and his own union he gave whole-hearted support to the resolution.

The **Chairman** said he would give any other speaker an opportunity of speaking to the resolution before he put it to the conference. There had never been any intention to get down to detail, of course; they had hoped to bless the ideas which had been put forward and in that way strengthen the hands of those who, in their various spheres, had to implement what had been said.

Gas Industry's 'Industrial Patriotism'

Mr. J. E. N. Davis, Chief Organising Officer of the National and Local Government Officers' Association, and a member of the National Joint Council for Gas Staffs, subscribed wholeheartedly to the resolution. He said he did not know the gas industry very well until it was nationalised but, if he could tell the Chairman so—he would tell no one else!—he had thought they were a bit 'stuffy,' when he first met them. His impression now was that of all the industries he knew, they were the happiest family—and he said that despite having spent the morning with Lord Citrine and his merry men. The impression was that they had the right spirit in the gas industry: there was a sort of industrial patriotism which was a good thing.

Mr. Davis said he was quite sure that if they were to achieve greater efficiency in the industry there would have to be changes —and changes concerned individuals. As a trade union official he would say that if someone discovered a way of running trade unions without officials, some people would not be very enthusiastic about the idea. When they had passed

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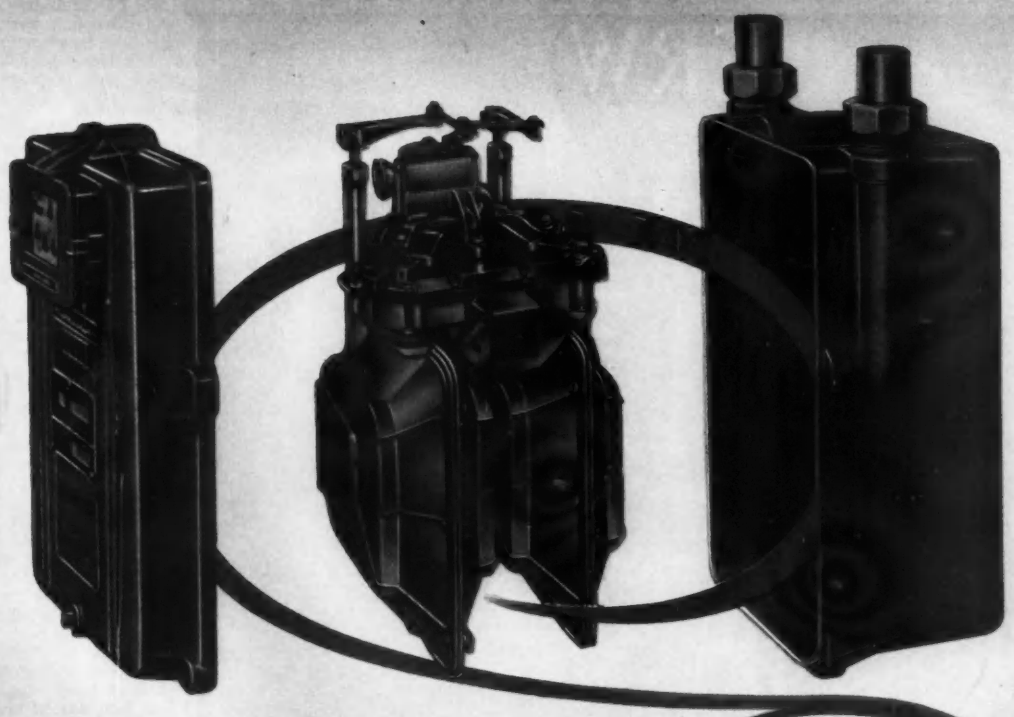

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the resolution and come to the conclusion that they wanted greater efficiency, and wanted the consumer and the producer to benefit from it, somehow they had to work out through the joint negotiating machinery some means of assuring the men and women in the industry that if they loyally co-operated they would not find themselves out of jobs because they co-operated. They had the heritage of memories of events between the two world wars.

He was sure it would be a matter of economy in the gas industry if any passengers created by changes were carried rather than put out of the industry or affected by some scheme which might suggest injustice to them. The moment there was a feeling that injustice had been inflicted on the man and that he was an innocent victim, as a result of the changes, good will would suffer; the good will which ran throughout the industry would be cramped.

Nevertheless, Mr. Davis hoped the resolution would commend itself to the Conference. He had expressed a view, he said, which he thought would commend itself to everyone present. It was a vital link in the chain if they were to achieve what they desired in this great nationalised industry.

National Picture Wanted

Mr. F. Hayday, of the National Joint Industrial Council, said he supported the general sentiments of the resolution. They were on common ground and he did not expect opposition. Nevertheless, various sectional interests were represented at the Conference, and in following up the resolution they ought to examine their respective machines—machinery for the productive worker, the distributive worker, the maintenance worker—to see what the machinery they had set up in the industry was doing. He knew that under the Act and by agreement the machinery had been set up throughout the industry; everyone had a voice there and, as stated in the Act, they could discuss the efficiency of the industry. But he and his colleagues were conscious that although the machinery was in operation, they had no national picture to show what the committee had been discussing in the past 12 months. Mr. Hayday said he looked on the Conference as an attempt at national level to have a look at the working of the machinery and to inject into it this approach and these ideas—this approach to greater efficiency and greater productivity.

Mr. Charles McMullan (Belfast), Irish Executive Officer of the Plumbing Trades Union, said that the basis of higher productivity and greater efficiency in the industry lay in the provision of the right raw materials at the cheapest possible price. In Northern Ireland the gas industry was in a very high state of efficiency and productivity; they claimed to sell the cheapest gas in the British Isles, and he believed that claim still to be well founded. He did not think the state of efficiency or productivity could be improved, but, from experience of having watched the coal pass up the conveyor belt to the retort house, he was sure that in recent years they had not been receiving the class of coal they used to receive. Furthermore, they did not get the same amount of by-products. An effort should be made with the National Coal Board to get a better class of coal. That was the real trouble. They were paying more for the coal and the quality was not so high; and, no matter how high their efficiency, they could not get as many cubic feet of gas, or the same amount of by-products, from the coal when they had to have a man standing by the conveyor belt picking out pieces of rock from it. They were burning tons more coal and getting less gas and fewer by-products.

In Northern Ireland, everyone in the industry had a voice in the industry. They had joint consultative committees and any group, even as small as a dozen, had a seat on them. They worked as a happy family. That was not the case on this side of the Irish Sea. His union had been trying to get a voice in what the conditions in the industry should be, but without success.

The conference unanimously passed the following resolution:

'Resolved by a conference held on Thursday, October 15, 1953, of representatives of the Gas Council, the National Joint Industrial Council for the Gas Industry, the Confederation of Shipbuilding and Engineering Unions, the Amalgamated Union of Building Trade Workers, the Plumbing Trades Union, and the National Joint Council for Gas Staffs, that every encouragement should be given to the organisations represented at the above conference to the consideration of plans for the improvement of efficiency in the production and distribution of gas, and particularly to the full use of the joint consultative committees set up in the gas industry.

'The Trades Unions who are members of the National Joint Industrial Council for the Gas Industry are as follows:—

'The National Union of General and Municipal Workers; the Transport and General Workers' Union; and the National Union of Enginemen, Firemen, Mechanics and Electrical Workers.

'The Trades Unions who are members of the National Joint Council for Gas Staffs are as follows:—

'British Gas Staff Association; National and Local Government Officers' Association; National Union of General and Municipal Workers; Transport and General Workers' Union; Association of Supervisory Staff, Executives and Technicians; the Gas Officers' Guild; Clerical and Administrative Workers' Union; and Association of Engineering and Shipbuilding Draughtsmen.'

Gas or Electric Cookers

UNLESS Tipton Corporation agrees to install electric cookers in 76 houses and flats now being built at Dudley Port, it will not be an economic proposition to provide main cables for lighting, the Midlands Electricity Board says.

At a meeting of the Town Council the Housing Committee recommended that the Board's suggestion to put in electric cookers to provide additional revenue should be rejected. The committee report states that the Board does not think that the installation of mains and services to the home for lighting only will justify 'the heavy capital expenditure involved.'

The Board has said that if the scheme to provide electric cookers is rejected the Corporation may be asked to share the cost of installing mains and services.

The committee points out that in addition to electric lighting municipal houses are also provided with power points and an immersion heater circuit.

Councillor F. A. Chamberlain, deputy chairman of the Housing Committee, said: 'We turned down the suggestion because to decide on electric instead of gas cookers now, would probably mean delay in completing the estate. This would be unfair to the people who are waiting for new houses. In any case we feel it is cheaper to cook by gas than electricity.'

Purchasing Officers' Annual Meeting

THREE hundred members and guests of the Purchasing Officers Association attended the annual conference held at Brighton at the end of September.

During the opening address of the conference, the Hon. L. W. Joynson-Hicks, M.P., parliamentary secretary of the Ministry of Fuel and Power, said he advocated neither the running of industry by the Government, nor a reversion to 19th-century laissez-faire. 'My view is that industry is far more competent to run its own business than the gentlemen in Whitehall, but a Government has to create and maintain conditions in which those engaged in industry can run it to the best advantage of the community.'

He added that the present Government was now engaged in the difficult process of unravelling the centralised system inherited from the war and the previous Government.

The Government had also aimed at restoring to industry the capital, or some of the capital, taken from it in taxation which industry needed to finance its operations. 'During the past two years as a result of reduction the Government have restored the substantial figure of £1,000 mill. to the people to whom it belongs,' he said.

Uniform Catalogue

THE gas industry—on the contracting and appliance manufacturing side as well as in the sphere of supply—has always recognised the importance of protective clothing for its workers and the prestige as well as utility value of well-designed uniforms for those of its employees who are in contact with the public. It will therefore find much of interest in the *Uniforms and Industrial Clothing Catalogue*, a new annual publication from United Trade Press, Ltd. (Boswell House, 9, Gough Square, E.C.4, 10s., post free), which deals comprehensively with the complete range of service uniforms, general uniform wear, and industrial clothing. It caters for those responsible for the purchase of all types of uniforms, overalls, protective wear, footwear, facewear, headwear, gloves, textiles and accessories. With the help of the fully illustrated buyers' guide, purchasing and indent agents can locate suppliers of almost any type of clothing equipment required. The articles in the catalogue present much practical information on how to make the right kind of purchases, quality points to look for, garment storage methods and information on the latest cloth and clothing tests carried out by service and industrial experts. There is also a simple guide to all the legal requirements for protective clothing and a list of testing laboratories.

THE NEW WORKS at MAELOR

Retort House and Coke Bunkers (W. J. Jenkins & Co., Ltd.)

GAS was first introduced in Wrexham in 1827. In 1839 the Wrexham Gas and Coke Co. was formed and took over the assets of the original suppliers at a cost of £705. A new works was then erected in Willow Road at a cost of £507. The output of the works increased steadily and in 1869 a larger site was necessary. During the period 1869-70 the whole of the works was transferred to the present site in Rivulet Road. At this time the company obtained its first Act of Parliament and became a Statutory company under the name of the Wrexham Gaslight Co., the capital involved being £15,000. An Act of Parliament in 1905 changed its name to the Wrexham Gas Co.

By 1938 the make of gas had increased from the 1900 figure of 100 mill. cu.ft. per annum to 223 mill. cu.ft.

The second world war brought about a rapid increase in gas consumption and carburetted water gas plants were installed in 1943 and 1947, by which time the annual make of gas had increased to 406 mill. cu.ft. Requests were also being received for bulk supplies of gas to the neighbouring undertakings of Rhos, Cefn Mawr, and Llangollen.

It became obvious that new plant was urgently required and permission was obtained for the construction of a modern intermittent vertical chamber oven plant of 25 chambers, with a capacity of 2,250,000 cu.ft. per day, on a site adjacent to the existing works. This plant was to be so arranged that a duplicate setting could be later added to give a total output of 4,500,000 cu.ft. per day. With the existing water gas plants a total maximum daily output from the present site of 6 mill. cu.ft. was to have been possible.

This, then, was the position on May 1, 1949, when the Wrexham Gas Co. became vested in the Wales Gas Board. It was now possible to review the gas supplies in the North Wales area with a wider outlook, and as a result it was decided to choose a new site for the erection of the carbonising plant and to expand the proposals of the former company to include the provision of the necessary purification, compressing, storage, steam raising, electricity generation, and other ancillary plant on a new works which should not only supply gas southwards in the Rhos-Cefn Mawr-Llangollen area but also northwards to Mold, Buckley, and Deeside. In the autumn of 1949 the Wales Gas Board acquired a site of 27 acres on the Wrexham Trading Estate some 3½ miles south-east of the centre of the town for the purpose of erecting the Maelor works.

De-tarrer, Ammonia, and Oil Scrubber, by Whessoe Ltd.

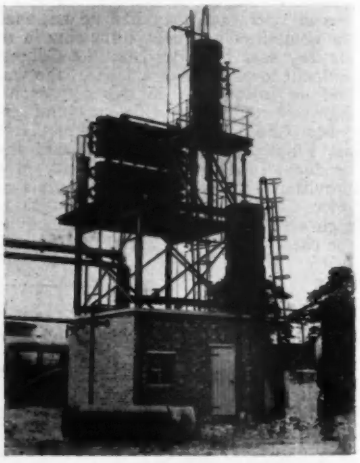
North Wales Gas Grid

The new gasworks at Maelor is an important part of the co-ordinated scheme that has been prepared for the integration of gas supplies in the North Wales area. Initially the gas produced at Maelor will supply the needs of consumers in the Wrexham, Rhos, Cefn Mawr, and Llangollen areas. The construction of mains for Rhos and Cefn Mawr has been completed, and the mains to Llangollen are well advanced. When the main north from Wrexham—which is in process of being laid—is ready, gas from Maelor will meet part of the requirements of the consumers at Mold, Buckley, and Deeside.

The Holder by Drummond & Co. (Gasholders), Ltd.

The grid planned will be supplied with gas from three principal sources of supply, viz., Maelor works, coke oven gas from the Shotton works of John Summers and Sons, Ltd., and methane drained from Point of Ayr Colliery and subsequently treated to render it suitable as town gas. The latter project is the first large-scale development of a process new to Great Britain, and the use of methane from Point of Ayr will save the nation some 30,000 tons of coal annually.

The grid system, extending through the counties of Denbighshire, Flintshire, and Caernarvonshire, and into Anglesey, will serve not only the important developing industrial districts of Wrexham and Deeside, but also the North Wales coastal resorts as far as Caernarvon, with supplies to other communities. The system is designed so that further development can later proceed.

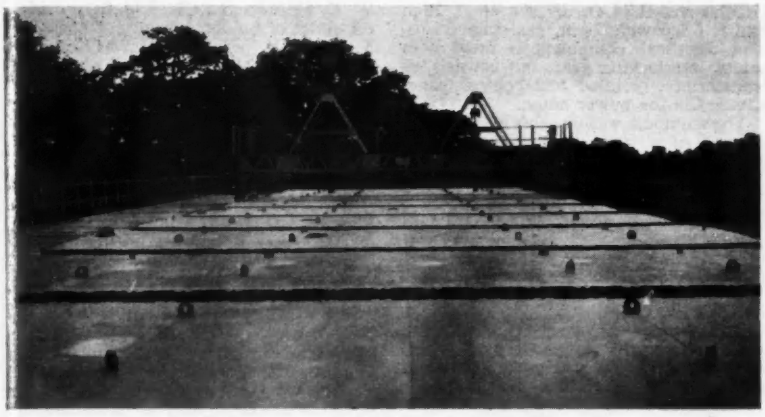


Concentrated Liquor Plant (W. C. Holme & Co., Ltd.)

Intermittent Vertical Chambers

The carbonising plant is the fourth of its type to be installed in Wales, the others being Holywell (1933), Milford Haven (1936), and Abertillery (1937). Intermittent chambers are not limited to selected high grade coals but will deal adequately with a wide range, and particularly those of lower coking value, at the same time producing good yields of gas with a high degree of flexibility of output, and in particular a strong coke of low breeze content suitable for both domestic and industrial use.

The carbonising plant, complete with the necessary coal and coke handling



The Purifiers were built by Peter Lind & Co., Ltd.

equipment and coke grading, storage, and loading plant has been designed and built by W. J. Jenkins and Co., Ltd., of Retford, Notts.

The installation consists of 25 chambers each of 3.65 tons capacity, arranged in one bench of five equal settings, and has a nominal maximum output of 2,250,000 cu.ft. per day. It is housed in a modern steel-frame brick-embellished building of pleasing architectural appearance and is designed for extension to double the present size in one or more stages.

Coal brought to the site by road vehicles is discharged into an underground receiving hopper, from which it is extracted by a feeder conveyor of the De Brouwer type, either into a coal crusher or, in the case of small coal, into a by-pass chute, both of which discharge into a 80-ton per hour elevator. From the elevator the coal is discharged on to the first of two rubber belt conveyors, the second one running the full length of the overhead bunkers from which it is discharged by a travelling throw-off carriage. The overhead bunkers have a total storage capacity to cover 72 hours working and are completely enclosed to minimise dust nuisance and fire. Feeding doors in the bunker cover platforms are automatically opened and closed by a plough on the travelling throw-off carriage. Integral with these bunkers and extending the full length of the bench are coke hoppers, also 72 hours storage capacity, for producer fuel.

Provision has been made for the installation of a duplicate coal elevator; either elevator will feed the present bench or the future extension.

Bench and Brickwork

The bench is made up of five equal settings each of five chambers. Each setting is heated by a built-in step-grate producer and has its own secondary air recuperator.

The chambers are constructed of 95 per cent. silica and measure approximately 19 ft. 2 in. high by 9 ft. 10 in. wide and are tapered 10¼ in. to 13 in. on the minor axis. The chamber heating flues are formed by continuous tongued and grooved key tiles bonding adjacent chambers throughout the full width, thus forming an entirely monolithic structure which gives maximum strength in the oven walls to withstand the pressures exerted by strongly swelling coals. Expansion of the silica materials is provided for on the periphery of the silica work and this avoids the possibility of distortion, thereby ensuring a long working life. The producer fittings are of the loose type to allow for expansion and to permit easy renewal. The recuperators are of the contra-flow type and a feature of this design, which gives easy control of temperature, is that each secondary air flue is entirely independent from the inlet slide to the combustion chamber. The settings are adequately insulated on bench top and side walls.

The bottom gas offtake is of patented type and is actually formed in the dome of the bottom discharge doors. Pressure in the lower part of the chamber is eliminated, thus permitting the use of water-sealed bottom doors. Counter balanced hand-operated closing gear is fitted to the bottom doors.

The gas offtakes, hydraulic mains, valves, and collecting mains are continuously sprayed with hot ammoniacal liquor.

Coke Grading and Storage

A belt conveyor from the chamber house conveys the coke to a reinforced concrete building composed of screen house and bunkers of 350 tons capacity. On reaching the screening house, the coke first passes over a scalping screen which removes the fraction over 3 in. which flows via a spiral anti-breakage chute directly into the larger coke compartment.

The coke below 3 in. passes on to a main grading screen of the balanced reciprocating type, which grades into four sizes:—0-½ in., ½-1¼ in., 1¼-2 in., 2-3 in., spiral anti-breakage chutes again being employed for the two larger sizes of coke.

The cones of the bunker are lined with special hard burnt tiles and are fitted with discharge doors below which are vibratory screens and loading chutes. All sizes of coke (except breeze) are rescreened to remove breeze and smalls before being loaded to road or rail vehicles or into bags.

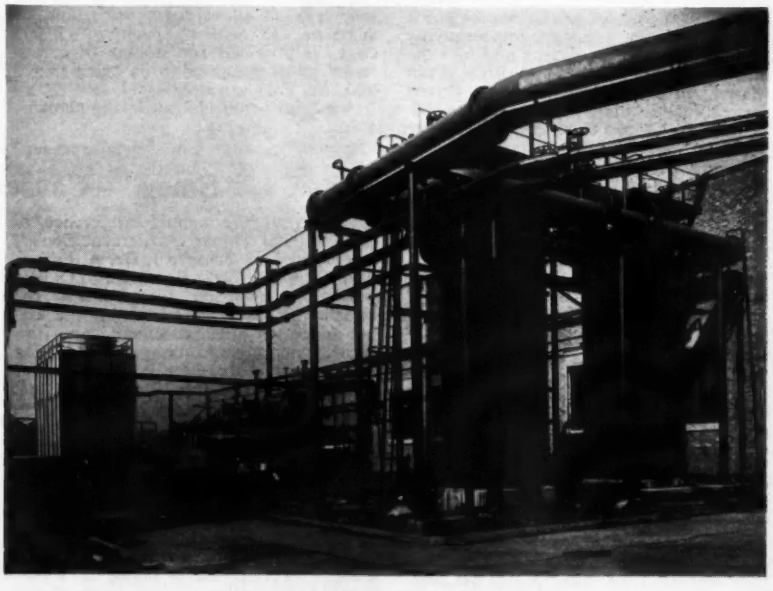
Waste Heat Recovery

The bench is equipped with a Spencer-Bonecourt waste heat boiler generating steam at a pressure of 150 lb. per sq. in., the boiler being complete with electrically driven draught fan, feed pump, and automatic boiler feed controls. This boiler deals with the full output of waste gas from the bench; a brick chimney deals with the waste gas during the boiler overhaul but provision has been made for the later addition of two more boilers.

The whole plant has been designed to ensure economical working as regards fuel and power and labour requirements and is fully instrumented for ease of control. Much thought has been given to the ease of operation and comfort of the stokers; adequate natural and artificial lighting is ensured with roomy platforms and staircases and a goods/passenger lift gives access to all levels. Mess, locker, and bathing and lavatory accommodation have all been provided in the building.

A Few Statistics

It is estimated that the Maelor works will carbonise some 36,000 tons of coal per annum, producing 2,900,000 therms of gas, 18,000 tons of coke, and 435,000 gal. of tar. The area of supply of the Wrexham undertaking alone covers approximately 38 square miles, some 80 miles of main being laid to serve 14,500 gas consumers. A further 8.5 miles of main have been laid to supply gas from



General View of Condensing Plant.

Maelor to an additional 4,300 consumers in the areas served by the Rhos and Cefn Mawr undertakings. Extension of mains to serve Llangollen and the Deeside area north of Wrexham will add another 12,000 consumers to the mains system supplied from Maelor.

Carburetted Water Gas

The C.W.G. house is a sheeted building of brick and steel frame construction and is so designed that protection is given to overhead bunkers for water gas plant and boiler fuel. The building houses two solid-fuel boilers and is intended to accommodate two 750,000 cu.ft. per day capacity carburetted water gas sets that are to be transferred to Maelor from the existing Rivulet Road works in Wrexham. A separate blower room for the water gas plant is provided in the building.

The building is designed to hold a third boiler and two 1,750,000 cu.ft. per day capacity carburetted water gas sets (in place of the present 750,000 cu.ft. sets), and for extension if required.

The boiler installation in the carburetted water gas house consists of two Economic boilers, 16 ft. long × 10 ft. 6 in. dia., fitted with Oldbury chain grate stokers for firing coke breeze. Automatic control of feed water level is provided, together with a comprehensive panel of recording instruments. The boilers are fitted with forced draught and induced draught fans, grit arresters, and superheaters. Each boiler is rated at 6,000 lb. of steam per hour when firing coke breeze. Steam is generated at 150 lb. per sq. in. and superheated, as in the case of the retort house waste heat boiler.

Compressor and Power House

This new brick building of modern design houses gas exhausting and compressing plant and a bulk supply gas meter in one section, and in an entirely separate section electricity generating plant, switchboard, and high tension equipment for the electro-detarrer.

Two steam-driven Roots type exhausters, each of 200,000 cu.ft. per hour capacity, are installed for handling coal gas or carburetted water gas, or a mixture of these gases. The compressor installation consists of two steam-driven Roots type compressors, capable of handling 120,000 cu.ft. of gas per hour against 7 lb. per sq. in. pressure, for supplying gas to the Wrexham district and into the grid main supplying gas to Rhos, Cefn Mawr, and Llangollen. One steam-driven vertical reciprocating compressor, capable of handling 70,000 cu.ft. of gas per hour against 15 lb. per sq. in. pressure, is also provided for supplying gas north to the Deeside undertakings. A Connersville meter with a rating of 150,000 cu.ft. per hour is installed for metering under pressure the gas supplied into the grid main running north from Wrexham.

Ancillary Plant

Two vertical water-cooled condensers, of 5 mill. cu.ft. per day capacity, are provided. Each condenser consists of a mild steel vertical chamber measuring 6 ft. 7½ in. × 5 ft. 6¾ in. × 25 ft. 6 in. high with vertical water tubes and 24-in. dia. gas connections. Automatic control of the outlet gas temperature is provided by thermostatically-operated cooling water supply valve.

The W.-W.D. detarrer installed by Whessoe, Ltd., in the gas stream at outlet of exhausters is designed to handle 5 mill. cu.ft. of gas per day with 99% efficiency of removal of tar fog. The detarrer consists of a mild steel circular vessel, 6 ft. dia. × 26 ft. high and is fitted with 24-in. gas connections. The electrical equipment is fitted with safety interlocking gear and consists of transformer, rectified and control panel situated in the power house.

The ammonia washer, also by Whessoe, consists of a static type washer in two sections, of all-steel construction, with 24-in. valves and connections, designed for a capacity of 5 mill. cu.ft. per day. Each section measures 10 ft. 8 in. × 5 ft. 4 in. × 13 ft. 1 in. high and contains four washing bays packed with board filling.

The Naphthalene Washer

The naphthalene washer consists of a single mild steel rectangular vessel, board filled, with four bays, overall dimensions being 10 ft. 8 in. × 5 ft. 4 in. × 13 ft. 1 in. high, designed for a capacity of 5 mill. cu.ft. per day. Valves and connections of 24-in. dia. are provided with electric motor and circulating pumps as for the ammonia washers.

Five reinforced concrete ground level purifiers are installed with suitably braced steel lids. There are two lids to each box and the purifying material is carried on two layers of grids. The five boxes are arranged for series rotation through 20-in. dia. valve and connections, with split flow to each box. A gas heater is provided on the main inlet to the purifiers.

Station Meter

A Holmes-Connersville station meter with a rated capacity of 200,000 cu.ft. per hour is provided on inlet to holder, with valves and connections of 20-in. dia.

Gasholders

The main gasholder has three spirally guided lifts in a steel tank and when fully inflated has a capacity of 500,000 cu.ft. It is equipped with 30-in. dia. valves and connections and is of riveted construction. Anti-flood pipes are provided on the inlet and outlet mains, as well as a safety by-pass governor between inlet and outlet. The practice of using hot enamel for protecting parts of the holder exceptionally liable to corrosion, as adopted at Pontypool, has been repeated in the case of this holder.

A two-lift spirally guided holder in steel tank, of all-welded construction, by Whessoe, Ltd., with a capacity of 250,000 cu.ft., is provided for storage of carburetted water gas prior to its being mixed with the coal gas stream.

A calcium chloride gas-drying plant by W. C. Holmes and Co., Ltd., is provided on outlet of holder, having a capacity of 5 mill. cu.ft. per day. Valves and connections are 24-in. dia. The plant consists of a cast iron static washer of four chambers, brush-filled. The plant is provided with rack cooler, pumps, storage tanks, and concentrator for calcium chloride.

An induced draught water cooling tower, capable of dealing with 45,000 gal. of water per hour, is installed to allow for re-circulation of condenser cooling water. The tower is of rectangular timber construction, with board filling, and stands over a reinforced concrete water basin which forms its foundation.

A liquor concentration plant for the automatic production of concentrated liquor of 20% ammonia content, and capable of dealing with 20,000 gal. per hour of crude liquor, is provided. A cylindrical storage tank of 11,000 gal. capacity is provided for storing the concentrated liquor.

Main Contractors

Intermittent Vertical Chamber Oven Plant and Coke Grading Plant—W. J. Jenkins & Co., Ltd.

Condensers, Detarrer, Ammonia Washer, and Naphthalene Washer—Whessoe, Ltd.

Purifiers—Peter Lind & Co., Ltd.

Station Meter, Gas Dehydration Plant, and Concentrated Liquor Plant—W. C. Holmes & Co., Ltd.

Gasholders—Drummond & Co.; Whessoe, Ltd.

Economic Boilers—Foster, Yate & Thom, Ltd.; Edwin Danks & Co., Ltd. (Chain Grate Stokers); Unit Superheater & Pipe Co., Ltd. (Superheaters); Clyde Blowers, Ltd. (Soot Blowing Equipment); Davidson & Co., Ltd. (Induced Draught Fans and Grit Arrestors); G. & J. Weir, Ltd. (Feed Pumps).

Carburetted Water Gas House—T. C. Jones, Ltd. (Steelwork); Wm. Hall & Son, Ltd. (Brickwork); Humphreys & Glasgow, Ltd. (Skip Hoist and Coke Chutes); T. E. Warrington, Ltd. (Chimney).

Compressor and Power House—T. C. Jones, Ltd. (Steelwork); Wm. Hall & Son, Ltd. (Brickwork).

Exhausters and Compressors—Geo. Waller & Son; Bryan Donkin Co., Ltd.

Steam Engines—Belliss & Morcom, Ltd.

Alternator Sets—Belliss & Morcom, Ltd.

Electrical Switchgear and Cables—Thorntons, Wrexham.

Steam Pipelines—Unit Superheater & Pipe Co., Ltd.; Versil, Ltd. (Insulation).

Gas mains—Stewarts & Lloyds, Ltd.

Gas valves—Westwood & Wrights, Ltd.

Site Preparation, Roads, Fencing, and Drainage—Whitley Bros.

Foundations—W. J. Jenkins & Co., Ltd. (F.C. Construction Co.): Peter Lind & Co., Ltd. A. Monk & Co., Ltd.

Roof Sheeting—Robertson Thain, Ltd.

'Smog'—Causes and Prevention

SPEAKING at the annual conference of the National Smoke Abatement Society at Glasgow on October 1, Dr. A. Parker, Director of Fuel Research, D.S.I.R., gave a report on the London fog disaster of last December. At the end he added a brief statement on how such 'smog' could be prevented. Dr. Parker said there were 2 mill. tons of smoke discharged into the air of Great Britain every year; one half was from industrial chimneys and one half from domestic fires burning coal. Yet only one-sixth of the total coal used was burned in domestic grates.

This smoke not only fouled the air but was a visible sign of waste of fuel. It had been shown how smoke emission from industrial boiler furnaces could be greatly reduced, with a saving of 1 mill. tons of coal a year. This method was being applied but not nearly fast enough.

If there was to be an appreciable reduction in domestic smoke, coal for householders must be replaced mainly by coke and other solid smokeless fuels. This was an enormous proposition. At the moment only about 5 mill. tons of solid smokeless fuel were used each year by domestic consumers, as against 35 mill. tons of coal. It thus meant an expansion of the coke and gas industries, which would take time, and also a drive to secure a well-balanced demand for coke, gas, and electricity. The latest designs of domestic heating appliances would burn coke satisfactorily and with an efficiency greater than coal.

If the aim of pure air was to be achieved within a generation, there must be a determined drive by everyone

SELLING GAS TO INDUSTRY

PRESIDENTIAL ADDRESS TO THE LONDON AND SOUTHERN JUNIOR GAS ASSOCIATION by

W. JOHNSON,

A.R.I.C., Assoc..M.Inst.Gas E., South Eastern Gas Board.

I HAVE just completed my first year as an Examiner for the Institution of Gas Engineers and it is a most revealing experience. Setting a fair question and one which is neither too difficult nor too easy is a considerable task. I have been greatly helped in my duties by your past President, Mr. C. D. Shann, and I must express my admiration for the painstaking way in which he carries out the responsibility of Assessor and Chairman of Examiners. I am convinced that the new qualification for the Associate Membership of the Institution is a move in the right direction. At the present time there are not many candidates but it is probably due to the change over. I believe that candidates will come forward, but it is to be sincerely hoped that the Technology of Gas Supply Course Examination will not replace the Associate Membership Examination as the aim of most students. The remedy is finally in the hands of our employers, and I have every confidence that they will support the higher qualification.

My last year's experience has shown me clearly the limitations of instruction by lectures and there is a great need for some practical training. While admitting that last year's examinees were of a lower standard than usual, it was obvious that although industrial questions were covered in the course of training, the students failed because of their complete lack of practical knowledge. I am still unconvinced that it is right to include industrial usage in this examination as at present constituted. I think that the time has come when the gas supply examinee should be able to choose between two sections:—

(a) Distribution with utilisation as a secondary subject or (b) Utilisation including industrial as the principal subject with distribution as a secondary subject.

Finally we must face up to the position that for several reasons, mainly financial, part time teaching can only be a work of love and not one of profit. The time has come for the Boards to provide teaching staff in gas subjects rather than rely on private individuals.

Such developments in education would enable the teaching to become more specialised and also provide means for giving the courses of study a practical as well as theoretical background. As we showed just after the war, when the intensive courses were running, teachers could be drawn from the gas staffs without seriously interfering with our normal duties.

I am glad to learn that my own Board is offering one day per week to young men to enable them to attend part time courses at the technical colleges. The capacity for learning is greater when mind and body come fresh to the task and the hours spent at night school, often without time or opportunity for a proper meal, must impose a physical and mental strain.

The Industrial Gas Salesman's Duties

The industrial sales engineer's duties are the sale of gas to factories, that is premises in which some product is made or stored whether for profit or otherwise. His duties should cover all uses within the factory whether for production or for welfare purposes, such as the canteen.

Every heat process in a factory is a potential gas load. With very few exceptions gas is in competition with solid fuel, oil, and electricity and the final choice rests on the suitability of gas, or its economic value, or it may rest on the skill used in selling. Price of gas in relation to other fuels defines roughly the boundaries within which we can sell industrial gas. The industrial sales effort is concerned not with the whole fuel requirements of industry but that great market which lies between our certain loads and the uneconomic boundary.

If gas is cheap, the available market is very large and it contracts as the price rises in relation to other fuels. The industrial consumer does not, as is the case with the domestic consumer, install fuel burning equipment solely for his personal comfort and well being, but in order to make some article which he can sell at a profit. The length of his purse is very elastic, if by spending he can make more profit. Hence it is the economic value of the fuel which is the first consideration.

In the South East of England the price of gas for factories is higher than the rest of the industrial parts of England. The Gas Council report for 1951/52 gives the following figures:—

Area	Price/therm	Area	Price/therm
Scottish ..	10.00	Wales ..	9.34
Northern ..	6.32	Eastern ..	14.51
N.W. ..	9.93	North Thames ..	12.96
N.E. ..	10.23	South Eastern ..	13.45
E. Midlands ..	8.01	Southern ..	14.93
W. Midlands ..	10.81	South Western ..	13.98

In spite of the fact that the average price in the two London boards is approximately one third higher than the national average, one sixth of the total industrial load in this country is shared by the two boards. This state of affairs may be due to the very wide diversity of trades or the effect of high site values, or the tendency for factories to be smaller.

The diversity of trades calls for wider and often more specialised equipment. High site values mean that space is very valuable and this extends the economic range of a space saving fuel like gas. The smaller factory is advantageous because the total load is more stable and is not subject to wide variations. The fuel burning apparatus tends to be smaller and the fuel bill often less, in relation to other costs. Hence gas may be preferred because of its reliability and simplicity in use.

These facts explain in some measure why we are able to sell gas to factories in spite of our relatively poor competitive position. The economic factor is fortunately only one of the three factors influencing sales.

Suitability

Suitability may be affected by a number of different factors: (a) ability to fit into the production line; (b) labour saving; (c) quality of product; and (d) reliability. Gas, oil, and electricity have big advantages over solid fuel. The greater use of mechanical aids and line production is an advantage to gas if it is properly exploited; because, together with electricity, it is the easiest to use. Gas and electricity can often show advantages over other fuels in the quality of product and reliability—the ability to run the plant for long periods without stoppage for repairs or adjustments.

Electricity is now capable of heat treatment methods which are unique to itself, while gas also retains some monopolies, particularly in glass fabrication.

Selling Skill

The amount of load we obtain depends on the skill we employ more than any other factor, but there is a definite economic limit to the money which can be spent on skilled staff and development of new uses for gas. There must be in every board a point where increased skill does not give a commensurate return in sales of gas. It follows that the greater the selling skill, the more efficient the organisation, the more money is available for our sales

effort and alternatively bad selling and organisation leads to a point when the search for this load should cease.

The need for selling skill also rises with the relative cost of gas to other fuels and the diversity of uses found in the district. Thus whereas the Productivity Report clearly shows that where gas is competitive on a simple effective therm basis, as it is with natural gas in America, the gas undertaking staff need only cover matters of gas supply, in the London area the price of gas is high and the need for skilled selling is very high.

Variation in Diversity

Variation in diversity is a term used to differentiate between areas devoted to single trades and those in which there is no specialised local industry. The London area is most diverse in its industries and gas usage. Every factory manager is looking for men who can advise him expertly on his own heat problems. The difference in cost per article produced between competing fuels is important but it may take second place to other advantages. The factory owner may even have difficulty in finding anyone to design a plant which exactly meets his needs, it is by no means uncommon to find unsuitable apparatus being adapted, with the inevitable unsatisfactory results. Such methods may become accepted as the only way to do the work.

Given the right training and backed by experience gained from the knowledge of heat processes used in a wide range of factories and by our own development work, it is possible for industrial engineers to produce new and better methods. In such cases by giving greater convenience or a better product our price disadvantage is reduced.

The gas industry supplies some 11 mill. domestic consumers which means that there is a potential market for millions of cookers, sink heaters and other hot water appliances, gas fires, refrigerators, etc. Every house, in theory, needs and is therefore a potential buyer of about six types of gas appliance. Any manufacturer with the necessary plant must look greedily at this huge and profitable market. Yet in spite of the rewards, which should enable him to organise a service from factory to consumer, as is the rule in the United States, the British gas industry has, rightly so, considered it necessary to set up development laboratories and sales organisations to supplement the makers' selling organisation.

Consider now the position of the industrial appliance maker. The gas industry supplies gas to 110,000 factories, a market 1/100th of the size of the domestic market. While the domestic user has half a dozen heat processes, each one exactly alike in their basic needs, industry has numerous heat processes. Fortunately there are some uses which are sufficient in number to enable industrial appliance makers to market standard types of equipment, though the range has to be much wider from one manufacturer than would be necessary in, say, a cooker factory.

Thus there is available a skilled industrial service to meet the factory requirements in some heat processes—*e.g.*, heat treatment plant, finishing metal goods, etc. These appliance makers, unfortunately, unlike most domestic gas appliance makers, supply equipment capable of using all fuels, so their sales organisation is not necessarily supplementary to our own sales organisation. I have been conscious for years of the fact that we rely too much on the direct selling of these firms and do not sell nearly enough of their equipment ourselves. I was, before the war, shocked to hear from a prominent manufacturer that the sales of his furnaces through the gas industry were a small proportion of his total business.

Demand for Specialised Plant

In addition to the equipment which can be bought from furnace makers there are many uses which are inadequately covered. There is a demand for specialised plant, a repeat for which may never arise except in the particular factory making the enquiry. It is this demand which our industry can meet without infringing the legitimate business of the appliance makers.

The first duty of an industrial sales engineer is to convince the factory manager that when he has a heat problem, it will be worth his while to seek the industrial engineer's advice before he decides what fuel or method he shall adopt. He will do this if the industrial gas engineer has proved by his previous contacts:—

(a) That he has a sound theoretical knowledge of the use of heat.
(b) That he understands the processes employed in the factory.
(c) That he is capable of giving clear and concise practical advice.
(d) That at all times he can be trusted to keep the confidence reposed in him.
(e) That within reasonable limits he puts his duty to the consumer first.

To be able to meet these requirements the industrial gas engineer must in the first place have received a sound training, preferably in the basic sciences, chemistry and physics. Lack of such training makes it difficult to carry out the work properly. Some measure of success may be achieved by long experience and a naturally receptive mind. It is therefore a piece of self-deception to appoint a man to do this work when he lacks these basic qualifications. Let me emphasise my first point that the factory owner should want to consult the industrial engineer on heat problems, not gas supply problems at this early stage. If he cannot meet the requirements given above he must avoid the full scope of his duties and keep to the subject he knows well—*i.e.*, gas supply. In other words he deals only with running supplies, etc., and ignores what he imperfectly understands. This method only brings in part of the available business; it is certainly not skilled selling.

Wide Initial Training

It is clear that the successful industrial gas engineer is a man of wide initial training. My own preference is the training of the chemical engineer, though the study of physics, applied chemistry, or mechanical engineering are equally good starting points.

The new education scheme of the Institution of Gas Engineers is a definite step forward and should produce more satisfactory recruits than the old Higher Grade Gas Supply course. I have spoken of the above qualifications as initial training. To produce the finished article the young industrial gas engineer must learn that first and foremost he is a salesman. Technical training must be just one of the tools used in doing the job. Equally important is an appreciation of the cash value of the work to the consumer. For example it is quite absurd to design an expensive drying plant to dry an article which has a very low value.

The final training is learning the methods of the consumers by daily contact. The factory manager is really the final tutor. These gentlemen have intense pride in their own work and given the right appreciation are often very willing to explain the work done in their factory. I need hardly say that this information and training must be properly used. A confidence has been given and must not be misused, whatever the temptation. The industrial gas engineer, to be really successful, must not only have the skill and training but he must be able to build up a 'personal' goodwill with the factory owner. This job is a very personal one and though the industrial engineer must have behind him an efficient organisation, for he has nothing to offer without it, it is his skill in using this organisation which is most important.

Industrial Sales Organisation

It is wrong to try to superimpose an industrial selling organisation on one designed principally to serve domestic consumers. It requires a separate selling organisation. It must have complete control from the first contact with the consumer to the final completion of the job. The specialised training and experience must start first with the industrial sales engineer and finish with the skilled industrial fitter.

This system has many critics but I have yet to hear any experienced industrial sales engineer condemn the system. The only objection which deserves close examination is that such a system is more costly. It is a firm principle of mine that the industrial consumer shall pay all costs incurred by the Gas Board in carrying out work;

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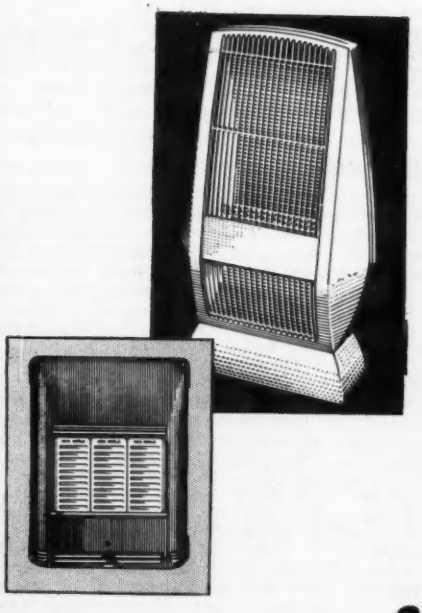

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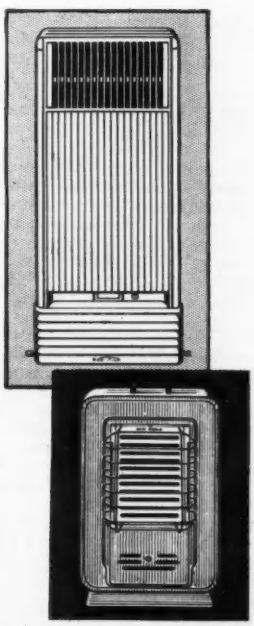

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hence if the cost is greater, it is borne by the consumer. That being so, it is the consumer's opinion which is all important. I have asked many factory managers who have had experience of complete team system and divided control systems, and there is not the slightest doubt that they prefer the former system because it ensures skilled attention at all levels. Its advantages are many and I would place first the creation of team spirit and the concentration of effort which leads to greater skill.

Staffing and Equipment

The staffing and equipment within most gas boards has tended to depend on existing facilities and staffing rather than on deliberate planning. With nationalisation of the industry it should be possible to provide properly planned schemes. The equipment and facilities we require can be split up into:—(a) development work; (b) design and construction of apparatus; and (c) training.

There appears to be some difference of opinion of what development work is. It is certainly not the subjects discussed by the Industrial Development Committee, if one can judge from the minutes of that committtee. Neither is it the designing of a special furnace to meet a specific consumer's need, using either known physical data or the more simple 'know-how.'

It is a much longer term programme and one which must be concentrated in the hands of the best industrial engineers we have, if it is to produce results. The Industry can only sustain two or three such centres in the country because of the shortage of men, and the high cost involved. This work can yield huge dividends by introducing new gas loads.

Every industrial organisation requires an adequate drawing office and workshops where special equipment can be of the most experienced practical industrial gas engineers and industrial fitters, plus specialised craftsmen —*e.g.*, furnace builders. They must have the closest contacts with the factories and must never be allowed to become 'inside' men.

The provision of these facilities, plus the whole of the industrial sales staff working together as one team, provides the necessary interchange of experience and ideas which is the most important part of training. When to this is added a sound basic training and a regular supply of information from other area boards, you can produce the men who can do the job.

Conferences can provide a valuable means for exchanging experience. A praiseworthy attempt has been made by the Industrial Gas Development Committee in the past two years to organise an Industrial Gas Conference. That there is a need for interchange of ideas on a wider stage than that provided by the Industrial Gas Development Committee there can be no doubt. The last meeting was an improvement on the first and the conference will no doubt increase its effectiveness as it gets more experienced, but I must admit some disappointment to date.

There was lacking the vitality and useful exchange of practical experience which was a feature of the Industrial Centre meetings at Watson House under the direction of the late W. Deiterichs. I use the term direction, because I think it more closely describes how he ran those meetings. In the discussion at Birmingham too much time was taken up with the price of gas and the need for competitive tariffs. This is important, but surely it is a matter for individual boards and not a suitable subject for general discussion. I feel the meeting was too big to be effective. I make a tentative suggestion that regional conferences—*e.g.*, S.E. England, Midlands, and so on, should be held rather than on a national basis.

Taking the South East of England, our interests, price conditions, and type of consumer tend to be of a pattern which is quite different from the Midlands or the North of England.

Prospects in South Eastern England

We have entered for the first time since 1937 the field of open competition in selling industrial gas. For 16 years we have for the most part been carrying out consumers' requests. In future we shall have first to persuade the consumer that he needs gas or can afford to use gas. This is a new experience to all who have come into this job since 1937. I welcome the change because it will not be possible in future to get results except by sound selling methods. In spite of the unfavourable price of gas in South Eastern England I am convinced that the prospects for any young gas engineer specialising in industrial gas are worthwhile.

Industrial usage, of gas is far and away the most interesting side of utilisation and I would appeal to the younger men to join in. When men of my age took up this work their efforts were not of very serious consequence to our employers because the load was small in total and our potential customers, though indulgent, were unconvinced of the value of gas for their processes. At least gas has established its place in factories and it is our duty to keep it there and it can be done in spite of price difficulties.

London Juniors Start New Session

MR. W. JOHNSON, President of the London and Southern Junior Gas Association, has asked his members to submit a summary of a paper for presentation at the annual meeting of the Institution of Gas Engineers.

He made this request before delivering his Presidential Address at the London Juniors' first meeting of the 1953-4 session on October 9. 'We have promised we will submit a brief summary of three suitable papers from this Association,' he said. 'I need one more, and I would suggest that if possible it should be on the subject of manufacturing.'

The PRESIDENT then made a presentation to Mr. C. D. Shann, the outgoing President. It was a plated tea-pot, but Mr. Shann pointed out that it was merely bought out of the 'change' after he had been presented with a tea-table trolley—too large to be formally handed over on the stage. In thanking the officers, members of the Council and Association members for giving him excellent support during the term of office, Mr. Shann commented: 'It seems quite astonishing to me that within less than seven years' membership I find myself already among the ranks of past presidents.'

Mr. SHANN then made a presentation to Mr. J. E. Gray, the outgoing Secretary. It had been a difficult time, in many ways, said Mr. Gray (referring to his work during the war and post-war periods), but he had not regretted it. On the contrary he had had a lot of fun out of it. He particularly wanted to thank his assistant secretaries, without whom he could not have carried on.

Mr. E. W. B. DUNNING moved a vote of thanks to Mr. Johnson for his Presidential Address. After detailing Mr. Johnson's career, Mr. Dunning said it would be quite clear that their President was a man who had wide experience in all the many sides of the industry. Commenting on the Address, he said there was the difficulty in delivering a presidential address of knowing whether to talk of the Association or everyday subjects of the industry. Mr. Johnson had managed to do both.

Referring to Mr. Johnson's comments on education, he remarked that in examinations, most students came from the ordinary selling staff, and their weakest subjects were industrial processes and distribution. 'It would be very much better if they were able to go out and see the projects on the district and to visit factories,' he added.

Mr. N. JUNKISON, Junior Vice-President, said in seconding, it might be said that in some way he was commending the President for the coming session; but he was quite sure all of them knew Mr. Johnson so well that any commendation would be almost impertinent.

One important subject which Mr. Johnson had not touched upon in his paper, said Mr. Junkison, was publicity. 'It is surely clear to everyone now that we are entering, particularly in the industrial field, a period of intense competition. I believe that there are three important factors we must watch; the first two are the price differential and the availability of suitable plant.

'The third is publicity, by which I mean far more than advertising. It seems to me that publicity is very much a part of any sales organisation, and I am convinced that we must lose no opportunity to put over the story of industrial gas by articles in the appropriate trade journals, descriptions of our successful installations, photographs, and all these things which keep industrial gas well to the fore.'

FUTURE TRENDS

PRESIDENTIAL ADDRESS TO THE MIDLAND JUNIOR GAS ASSOCIATION BY

J. A. TOMES,

M.Inst.Gas E., M.Inst.F., Works Engineer and Manager, Stourbridge, West Midlands Gas Board

THE Government in its wisdom has not thought it necessary to propound a national fuel policy. The gas industry must, therefore, continue with its effort to try and convince the community that it alone can make the best use of the national fuel resources of carbonising coals and that the process is second to none in the provision of clean, controlled heat.

There is little doubt that the 'Indian Summer' of our industry has passed, and the great increases in the cost of coal over recent years, combined with deteriorating quality and alarming predictions of its future availability, leave no alternative but to attempt to improve the efficiency of existing plants in every way possible and to carry out research on new plants which may ultimately help us to ensure our products are competitive in price.

Gas outputs must be increased, so that every avenue that may lead to a cheaper therm must be explored to the full and selling price must be the yardstick by which our efficiency is judged.

The most important items in our future economic outlook are undoubtedly the limited availability of good gas coal and the new coal price structure. Obviously, therefore, future plans are mainly centred on finding means of efficiently carbonising poorer coals.

To obtain a high gaseous yield combined with a good saleable coke our present systems of carbonisation demand a special type of coal, the reserves of which have so markedly depreciated. The tonnages that will be needed are such that will necessitate a change from the traditional manual method of winning it to machinery, meaning that the material produced will be smaller and dirtier, and if cleaned, may carry a higher moisture content. The tendency will therefore be for the gaseous thermal yield per ton, and the carbonising capacity of existing plants, to fall, and the yield of coke to rise. It will be necessary in order to increase the total tonnages available for carbonisation to use ever increasing proportions of lower grade coals, and the design of future carborising plants must be adapted to utilise such blends.

Gas Production from Oil

The use of oil in normal carbonising plant seems limited to emergency measures but the relative costs and availability of coal, coke and oil, together with the capital costs involved may under certain circumstances mean that C.W.G. could be produced even cheaper than coal gas.

The new oil refineries in this country have been presented wtih an increased demand for their lighter products so that the raw material has been cracked to a greater extent. The heavier grades of oil which have resulted from this practice have not been able to command the same price per therm increase as that of coal, so that attempts are naturally being made to design plants capable of utilising them. The production of base load gas from oil would mean that the gas industry would need to be reasonably satisfied that sufficient quantities of these heavier grades would be forthcoming at a reasonably stable price.

The plant must besides being economic, be capable of producing a gas which bears very similar characteristics to that of coal gas, and two processes appear to offer possibilities in this respect. The Segas[1] process gasifies heavy oil in the presence of steam in contact with a catalyst, the resultant gas being low in heavy hydrocarbons and rich in methane and hydrogen and of about 500 B.Th.U per cu.ft. so that its combined characteristics are similar to coal gas. This plant has now passed the pilot stage and has been erected as a commercial unit for the South Eastern Gas Board. In addition the West Midlands Gas Board is also engaged in erecting a catalytic gasification plant at Stafford which has proved successful in France.

Bearing in mind the high capital charges associated with our normal type of carbonising plant, the economics of such processes will undoubtedly repay study since if unable to compete with coal gas for base load supply it may produce cheaper peak load gas.

In the U.S.A.[2] where oil and natural petroleum gas are plentiful the tendency has been away from carbonisation of coal, manufactured gas, including C.W.G., representing in 1951 only about 4% of the total gas sold.

For gas manufacture in Great Britain the thermal value of oil used represents little more than 2% of the thermal value of the coal and coke used, and in a country such as ours where oil has to be imported and coal is there for the getting it appears extremely improbable that oil will ever take the place of coal for the manufacture of base load gas, particularly when one recalls that Dr. Parker[3] pointed out that the world reserves of oil are only one-third of 1% of the coal resources, and including oil shale, barely 1%.

Liquefied Petroleum

Further by-products of the oil refineries are propane and butane. Neither are waste products, butane being added to motor spirit in a substantial proportion, whilst propane, which has a greater volatility than butane, is a source of high quality aviation petrols after polymerisation. Neither are therefore cheap, e.g., cost of butane delivered to the works (November, 1952) was over 15d. per therm[4]. The Wales Gas Board and the North Eastern Gas Board have experimented successfully with the production of butane/air gas and butane enriched water gas respectively as a means of supplying small remote districts where it is uneconomic to produce as in normal carbonising plant and too far removed from large works to justify the use of a high pressure feeder main.

Dr. Johnson gave total costs, including capital costs for butane/B.W.G. of 13.54d. and 16.91d. per therm for undertakings with an annual output of 300 and 100 thousand therms per annum of 450 C.V. gas. Butane/air is considered to give favourable costs up to a capacity of 100,000 therms per annum, whilst the plant is very simple, low in initial cost, completely automatic in operation with no by-products to handle, and if required it can operate without a holder. Estimated costs for butane/air made into holder including wages, repairs and maintenance plant and buildings and general manufacturing expenses but excluding capital charges, range from 13.5d. per therm for an undertaking selling 125,000 therms per annum to 15.85d. per therm for an undertaking selling 27,000 therms per annum. Annual capital charges would appear to range from 2.0d. to 4.0d. per therm, dependent upon the extent to which existing buildings and plant are utilised and upon the amount of gas sold.

Many continental works employ cold carburetting of B.W.G. and producer gas with propane for peak loads.

Complete Gasification

Dr. F. J. Dent[5] has summarised the gasification programme of the Birmingham Research Station which involves investigation of processes of complete gasification which would ease demands on carbonisable coals, while the third report of the Gas Council informed us that the hydrogenation plant which was originally constructed by the Gas Research Board is being modified for fluidised operation. Complete gasification may be divided into three different techniques: Gasification of solid fuels in (1) a fixed bed at atmospheric pressure; (2) a fluidised bed

at atmospheric pressure; (3) in a fixed bed at high pressures.

The Lurgi process is another name for the third mentioned, being developed in Germany in the early 'thirties by Hubmann and Danulat. The first plants were employed by industry to utilise the cheap brown coal so plentiful there but it was later realised that such a plant could eventually change the structure of the German gas industry, since large gas works could, for economic reasons, be constructed on the coal fields with high pressure lines running from them to supply cheap town gas to a wide area. The old gasworks in residential areas would then disappear. As long ago as 1938 this process had been applied to the gasification of German brown coal, but it is only in recent years that it was considered economic to handle bituminous coal.

The West Midlands Gas Board is giving serious consideration to the employment of a Lurgi gasification plant. Tests of Midlands coals on the Continent have already been carried out with success, but its installation is also dependent on (1) being able to purchase the right coal at the right price, (2) the availability of large quantities of suitable water, (3) means for the disposal of large quantities of effluent, (4) the site must be suitable from the point of underground mining and foundations, and within reachable distance of the distribution system which it is intended it should surplant, and (5) the economics must be sound.

Complete gasification is sometimes applied to the production of producer gas from low grade coal, and when utilised in coke oven practice considerable quantities of coke oven gas will be made available to our industry at an economic price. The production of cheap oxygen would undoubtedly change the face of things completely and it seems ironical that we live and are surrounded by it and yet cannot find the solution to extract it more cheaply.

The Corporation of Victoria (Australia) is installing a Lurgi Plant of 5,000 mill. cu.ft. per annum to provide Melbourne with gas over approximately 100 miles and South Africa is constructing one of 40,000 mill. cu.ft. per annum from low grade black coal for the production of synthesis products[7], mainly motor fuel.

Another complete gasification process (the Gas Integral) has found favour on the Continent, particularly Italy. It is a two-stage gasification system operating at atmospheric pressure and can be used for relatively small gas outputs. It is announced that the North Thames Gas Board and the Woodall-Duckham Company have agreed in principle on the immediate erection of a 2 mill. cu.ft. per diem demonstration plant to work under English conditions.

We can only await the experimental results of the Gas Council's Birmingham Research Station which, if successful, may well revolutionise carbonisation as we know it today, and although opinions may differ as to whether complete gasification does find a serious place in the industry, investigation of its merits and demerits are vital if the national fuel position is to be accurately assessed. It is gratifying that the Gas Council and the West Midlands Board in particular mean to avoid stagnation.

Natural Gas

There is no doubt that wherever natural gas is available industry flourishes because of the cheap and efficient supply of energy.

Natural gas may generally be regarded as existing in two forms, that which arises from petroleum borings, and that which is liberated from our coal mines in the form of fire damp or methane. Increasing importance is being given to the use of natural gas in Continental countries. In France it constitutes some 10%, in Italy 40%, and in Austria 20% of the total gas consumed. Great Britain does not appear to possess large known reserves of natural gas, but investigations are proceeding at the instigation of the Gas Council to ascertain what quantities are available.

Commenting on the American visit, Mr. J. H. Dyde stated that in 1951 over 90% of the total therms sold by the American gas industry were from natural gas brought to distribution centres by 109,000 miles of transmission mains (these being up to 30 in. diameter and operating up to pressures of 1,000 lb. per sq. in.). By the end of 1952 gas production centres were reduced to five. In New York natural gas can be sold at 25% cheaper rates than manufactured gas, whilst in other areas more favourably placed it retails at a price that makes it cheaper than coal, oil or electricity on a gross thermal basis. This asset of natural gas has completely transformed the economy of the American gas industry and enabled it to develop its industrial and domestic space heating load to an enormous extent.

World Power reports tell us that Europe uses some 5 cu.ft. of manufactured and natural gas per person per day whereas U.S.A. consumes some 77 cu.ft. The preliminary report issued by the Bechtel International Corporation of the U.S.A.[8] suggests that Europe should be able to use as much natural gas as U.S.A. if advantage were taken of the vast supplies of natural gas in Iraq and Saudi Arabia instead of allowing them to burn to waste as at present.

It is suggested that a 2,500 mile line could be run from Kirkuk and Mosul in Iraq to Paris, with 500-mile extensions to collect natural gas from Persia and Saudi Arabia. Industrial centres would connect to this trunk line by branch pipelines each some 300 miles in length. Pressures would be maintained by 15 pumping stations. Stage 1 of the scheme would be the building of a single pipeline to deliver 500 mill. cu.ft. of gas per day, and Stage 2 would double the pipeline and its capacity. The construction of the line could be completed within three years. The map accompanying the report shows alternative routes with a branch line extending from Paris under the Channel to London. Figures given estimate that the maximum cost of gas over the pipeline and delivered at the end in Paris is only 2.7d. per therm.

Methane from the Mines

Much attention is now being given to the collection and utilisation of methane, which is naturally released in our mines as coal is produced. This has been variously estimated by investigators, but Roberts[9] stated that the amount of methane lost to atmosphere in Great Britain was equal to the whole yield of gas from the gas and coking industries, representing about 2½% of the thermal value of all the coal raised, whilst Dr. Parker estimated it at 1% of the coal raised. Referring to the gassy pits of South Wales, Roberts[10] estimated the emission of methane at 4,000 cu.ft. per ton of coal mined. Assuming the output of a sizeable colliery as 1,440 tons per day and calorific value of methane as 1,000 B.Th.U./cu.ft., this represents 40 therms per ton raised or per minute, or 57,600 therms per day or 720 tons of coal carbonised at 80 therms per ton. A further advantage is that methane extraction would improve the working conditions of the miners.

It is understood that collieries in the Ruhr have investigations in being and Monsieur Brabant[11] in 1950 stated that the collecting grid for fire damp was already well on its way to completion in Belgium, consisting of two centres yielding 60,000 and 120,000 cu.m. of gas daily free from H^2S and containing a minimum of 90% methane together with a plant to crack and reform the methane from 60,000 cu.m. per day. The fire damp was mixed with coke oven gas and blast furnace gas to obtain one that could replace normal gas, whilst part is mixed with air and supplied direct to industrialists who appreciate its constant composition and calorific value.

In this country negotiations are being made by the National Coal Board and the Wales Gas Board for the public utilisation of methane gas collected from coal seams below the estuary of the River Dee at the Point of Ayr Colliery, Flintshire. The gas is at present being used to fire surface boilers but will be reduced from a pressure of 300 lb. per sq. in. to 6 lb. per sq. in. at the colliery, fed into holders and either reformed or mixed with blue water gas prior to household or industrial consumption. Initially some 600,000 cu.ft. a day will be used as part of the supply for a North Wales gas grid scheme. In addition, the Northern Gas Board has commenced to receive a supply of gas that has been recovered from the undersea workings of the Haig Colliery, and pumped to Whitehaven Gasworks where it is reformed by catalytic process and delivered into the town supply system.

(*Continued on p. 204.*)

GOODYEAR BELTS AND HOSE GIVE TROUBLE-FREE SERVICE IN ROADSTONE QUARRY

Two years continuous use without attention

STARTING in 1935 as a small installation with only one crusher, Haye Quarry is today a big mechanised plant supplying hundreds of tons of graded limestone and tar-macadam daily. To ensure trouble-free working and high output, Messrs. Hoare Bros. Ltd., the quarry owners, use Goodyear Industrial Rubber Products throughout the plant. From the quarry face onwards to the screens and storage bins, Goodyear conveyor belts, transmission belts and hose, are on the job without pause or upkeep trouble every working day of the year. In the pulverizing plant for example, Goodyear Endless Steel Cable Transmission Belts have taken the heavy loads and worked in the abrasive conditions inseparable from this work *for over two years, without attention.* Hoare Bros. Ltd. are faithfully served by Goodyear.

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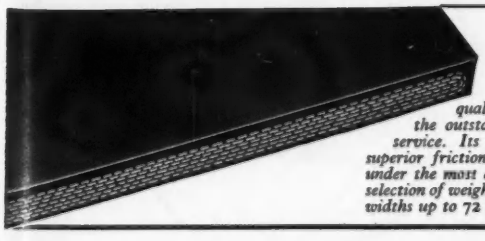

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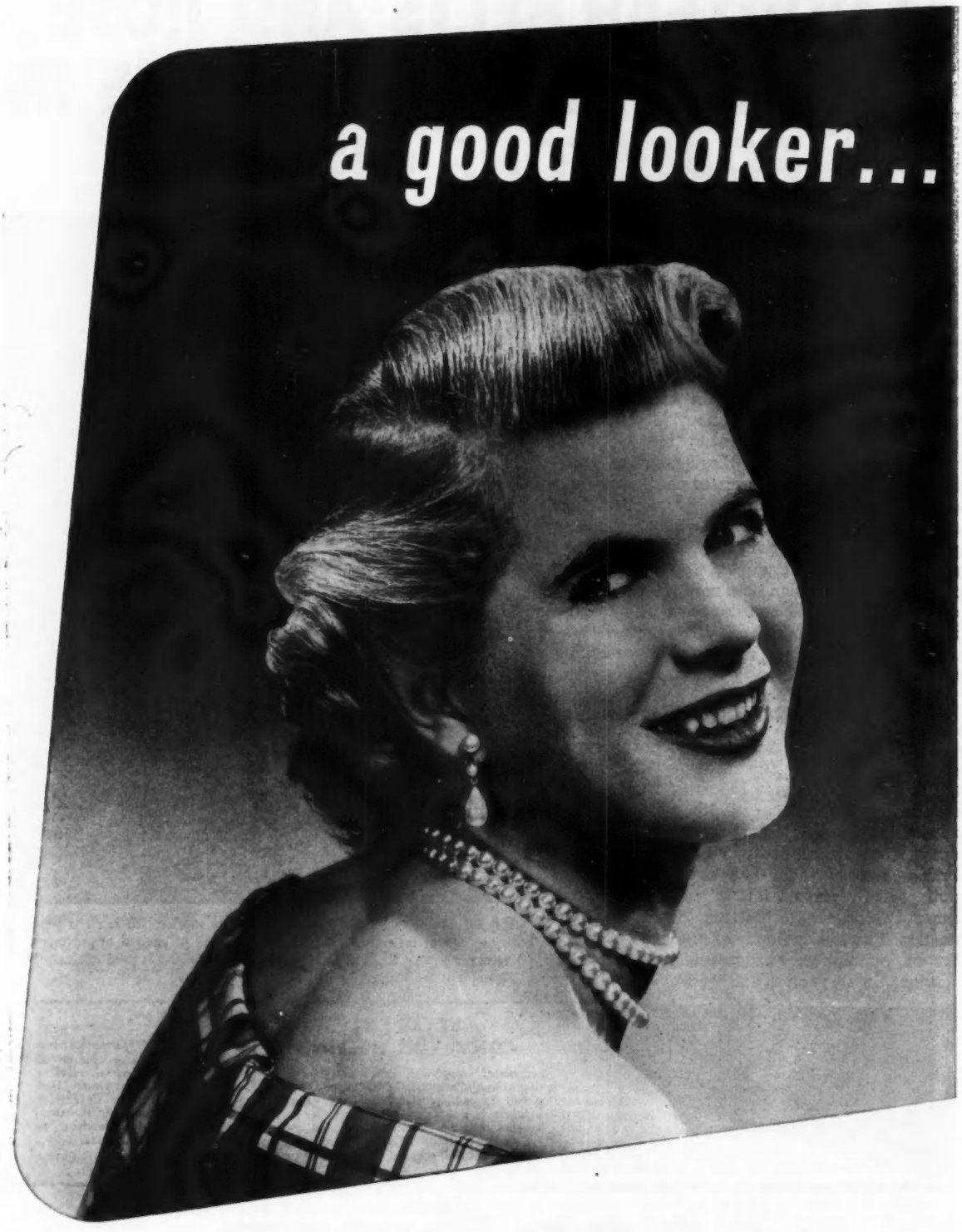

a good looker...

and a fine cooker

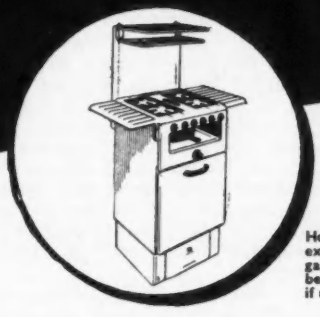
No. 20

CENTURY

GAS COOKER

Vitreous enamelled surfaces throughout — exterior finished in cream · four dual-purpose hotplate burners—for fast-boiling or simmering · large griller · hotplate fittings easily removed for cleaning · hotplate-well free from dirt traps · safety-type gas taps · double-shelf plate-rack · roomy oven giving high-quality cooking performance with minimum gas consumption · Mainstat oven-heat control · flash tube lighting to oven burner · drop-type door · used oven heat vented in front of back-plate · storage space in plinth base

The Century combines efficient performance with ease of cleaning



Hotplate side extensions and gas pistol can be supplied if required

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At one stage hopes ran high of the prospect of gasifying inferior seams or unmineable coal by the employment of underground gasification. Over 40 years ago Sir William Ramsay examined this method in England, while the Russians have carried out extensive practical research, as have also the Americans at Alabama, the Italians at Terni and Valdomo, and the Belgians at Wandre, near Leige. The most recent report by Masterman[12] on the trials in Britain shows that at present this is unlikely to be of direct use for town processes, the calorific value of the gas produced being only in the region of 100 B.Th.U. per cu.ft., but that trials are, however, proceeding in this country and abroad and since there is free and direct exchange of information of those involved, other than the U.S.S.R., it is possible that one or more preferred techniques may emerge within the next two or three years for these processes.

Purification

The generally accepted practice of iron oxide box purifiers is likely to remain with us for many years to come in view of the capital cost and the useful life still left in them. Moignard[13] has clearly indicated the manner in which these should be operated to give optimum results. As an alternative to these, for large scale operation, the introduction of tower purifiers economised in the total ground space required and also met the labour problem associated with more conventional form of boxes, but has not reduced the amount of labour required. Papers given on tower purifiers have amply drawn attention to their merits and demerits.

The dynamic purifier represented an attempt at a mechanical and continuous process, while retaining the principle of dry purification and was installed at Bournemouth with a capacity of 1 mill. cu.ft. per diem. This made for continuity of the purifying process since the oxide moves counter current to the gas flow, thus enabling the purification reaction to be kept under close control, whilst it possessed the advantage of small ground space required, lower capital cost and absence of oxide caking with no manual emptying.

Of the same principle is the Pellet-Tower system introduced in Germany many years ago and now working satisfactorily to their purification standards. The oxide pellets can be run off and the new ones introduced to the towers daily or per shift, as required, by a relatively simple operation. The process is now being developed in this country.

The recent uncertainty of a regular supply of suitable oxide has caused concern and Hollings[14] has described the steps which are being taken by the North Thames Gas Board to take advantage of the larger tonnages of Copperas (ferrous sulphate) which have become available as a by-product from the titanium industry in order to manufacture a purifier mass of high quality.

Liquid Processes

Liquid purification processes are employed on a large scale in the U.S.A. and Germany, where they are not normally called on to obtain purification to our statutory standards, although this is claimed for the liquid purification plant at the Manchester and Liverpool undertakings of the North Western Board[15]. Other plants are in operation at Wallasey and Newcastle-upon-Tyne. Interesting experiments are being made on new lines on the Continent and the Gas Council is investigating various processes, having already developed a catalytic process for the hydrolysis of hydrogen cyanide in the London Research Station.[16]

The North Thames Board[14] is installing at Beckton a plant similar to that installed at Pittsburgh and New Jersey, U.S.A., by the Koppers Company, having a capacity of 13 mill. cu.ft. of gas per diem. This W.D. Koppers Vacuum Carbonate system (which is an absorption and desorption process employing a solution of sodium carbonate as the washing medium) will be designed to reduce the H_2S content of the gas from 480 gr. to 48 gr. per 100 cu.ft., and the HCN content from 60 to 9 gr. per 100 cu.ft., the removal efficiency being 90% and 85% respectively. It is proposed during the preliminary trials to remove the residual H_2S in the existing boxes.

Disadvantages of the liquid purification process appear to be the risk of breakdown, which necessitates the costly duplication of some items of plant, the impurity of the sulphur obtained and disposal of the effluent. The choice of future purification processes will largely depend on the H_2S concentration of the gas and it may be found advantageous to employ liquid purification to remove the majority of the H_2S, say 80 to 90% yielding elemental sulphur, the remainder being removed by oxide of iron or, alternatively, conversion of the remaining sulphur compounds into H_2S catalytically (by a plant such as the Holmes Maxted or the Gas Light and Coke Company) and removing this, together with the remaining 10 or 20% H_2S by means of oxide boxes. This would have the desired effect of reducing our organic sulphur compounds to a reasonable figure (even to the ideal of 3 grains per 100 cu.ft.), thus saving maintenance and opening up new fields on the supply side.

Liquor Effluent

Three main factors have contributed to ensure that liquor disposal remains one of our major problems, and one to which considerable thought is being given to dispose of it economically. These are (1) the increase in size of existing works and the development of large scale gas-producing units which has upset the balance of gas liquor and sewage flow, (2) the increase in the loads carried by sewage treatment plants, and (3) the new legislation on the prevention of pollution with River Boards possessing powers to impose standards for discharged effluents.

The excellent work of Dr. Key[17] has shown the methods to be employed to reduce the volume of liquor produced by avoiding (1) excessive steaming in retorts and (2) excessive water to the ammonia scrubbing system, and to reduce the formation of toxic bodies in it by (1) admitting air for revivification at inlet purifiers (thus avoiding thiosulphate and thiocyanate formation) and (2) by reducing the time contact of tar and liquor, preferably by hot gas detarring (preventing undue concentration of polyhydric phenol). Even so, there still remains the usual further costly treatment of this volume of liquor before discharge. Although some areas still discharge crude liquor to the sewers, this is not desirable due to the loss of ammonia and the dangers arising from the evolution of H_2S in the sewers.

The Public Health (Drainage of Trade Premises) Act, 1937, gives the trader the right to discharge his effluent into the sewers, but only to the extent of his maximum quantity and rate on any day during the year ended March, 1937, and since at present the Act is administered in accordance with local byelaws any further disposal may require the consent of the appropriate local authority. The trader may be called upon to pay a fair sum for the treatment of his effluent, but owing to the complicated nature of gas liquor and the alleged different effects that the various compounds have upon sewage purification the subject of fair payment for treatment is a difficult one. Where such circumstances are encountered it is a question of economic balance and it may prove cheaper to dephenolate or even decolourise rather than pay heavy charges to the sewage authorities.

Efforts are still being made to discover the substances in liquor which have the greatest effect on the treatment of sewage and it is from the results obtained that the processes and charges for the future will be based. Meanwhile research continues in collaboration with those authorities concerned, and the further treatment of liquor is still centred on concentration to recover NH_3 and remove H_2S, and dephenolation, preferably on liquor produced from hot gas detarring. Efforts have also been made to dispose of effluent on the gasworks itself by bacterial oxidation[18] by-evaporation in producers or chimney stacks and coke quenching.

The new gasworks erected at Tingley, Yorks, has resulted in the volume of effluent being out of all proportion to the dry weather flow of the local sewage system, and the liquor scheme is designed to avoid discharge of effluent to the foul sewers.[19] The crude liquor is washed primarily with benzole to remove monohydric phenols, and then concentrated to remove H_2S and free NH_3. The waste liquor is then concentrated and washed with butyl acetate to free it from higher tar acids, being then further evaporated to crystallised ammonium chloride. Finally,

the condensates are passed through an activated carbon filtration plant to effect complete removal of phenolic bodies prior to discharge to surface drains. The cost will be high but it is hoped that this will be offset by sales of phenols and ammonia.

Gas Supply

Except for the case of small works remote from the nearest larger station, where the cost of interconnection may outweigh that of leaving them as self-contained units, the immediate future is bound up with the interconnection of existing supply systems. Centralised manufacture would appear the logical long-term policy and combined with interconnection will enable gas producing plant to be worked with maximum efficiency and economy with less cost of standby plant.

High pressure distribution of gas must increase in popularity as being the simplest means of conveying the gas to the desired point and of extension as needed, although the system can only be considered sound if gas is finally available at a lower cost than the displaced unit can manage.

Thus we can envisage a number of large strategically placed manufacturing units with a network of high pressure distribution mains with remote control radiating from them to serve a wide area. The use of district storage will be exploited to the full and attempts made to obtain constant loading of mains and boosters as far as possible. High pressure holders, owing to the limited ground space required, ease of concealment and automatic operation, lend themselves to favourable consideration where the supply position is inadequate for short periods only.

Mechanical aids to mainlaying will be employed to the full, and cast iron mains will undoubtedly be fitted with mechanical joints. Concrete roads will mean the continued adoption of the dual main system, and joint trench schemes with other supply services have everything in their favour once agreement is reached with all concerned.

Circumstances which I have previously mentioned may mean that the pressure to which the gas is compressed may rise greatly in excess of those to which we are accustomed today, involving the use of steel since the limited working pressure for spun iron pipes is in the region of 50 lb. per sq. in. The life of steel mains and services will probably be extended by the adoption of the American methods of cathodic protection, which claims a useful life of some 60 years.

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Eastern Section Meeting

MR. BERNARD CLARKE, M.B.E., Chairman, presided at a meeting of the Eastern Section of the Institution of Gas Engineers at 17, Grosvenor Crescent on October 14, and extended a warm welcome to Mr. J. T. Haynes, President of the Institution.

Mr. Haynes, in acknowledging the welcome, said he was particularly glad to attend on the occasion of a discussion on the report of the Gas Industry Productivity Team, introduced by Mr. J. H. Dyde and Mr. H. R. Hart. He would like them and the other members of the Team to know that the whole industry appreciated the fact that they had had a strenuous time and that they had produced a really valuable report.

The Chairman made sympathetic reference to the death since the last meeting of Mr. H. W. Barnes (Oxley Engineering Co., Ltd.) and Mr. J. S. Burgoyne (Par-Kinson Stove Co., Ltd.).

Mr. Clarke next made a presentation of a picnic set to Mr. F. A. Rhead (Peterborough) in recognition of his services as Chairman of the Section during the past year, a tribute which Mr. Rhead suitably acknowledged.

Displayed on the Chairman's table were two silver cups, presented by Mr. Derek Wilson and Mr. Fred Wilson, as challenge trophies for the bowling competition. Mr. Clarke said that under the enthusiastic leadership of Mr. R. J. Gavin the bowling section had made headway in recent years, and the trophies would be a great attraction in future tournaments.

Both the donors said a few words in acknowledgment of the Chairman's remarks and wished future bowling events every success.

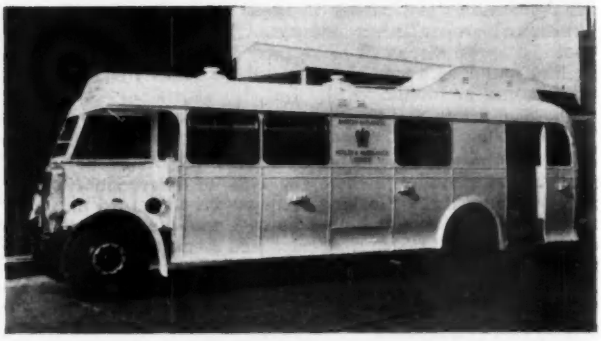
The rest of the meeting was devoted to a discussion on the Gas Productivity Report, a report of which appears on other pages of this issue.

The Island of Stroma is to have a regular supply of Calor gas to meet the needs of the area. Inability to supply electrical generation facilities on the island encouraged the Hydro Electric Board and the mobile gas industry to co-operate to meet the emergency. The result is agreement that Stroma will get heat and light from Calor gas at a special rate. The islanders at present use paraffin for all their needs.

A FULL BOARD AT SWAN VILLAGE

On the occasion of the inauguration of the new Swan Village gasworks at West Bromwich on October 9, Colonel Sir Harold Smith unveiled a plaque to commemorate the occasion. With him were all the seven members of the West Midlands Gas Board. Left to right: Professor F. H. Garner, Alderman W. H. Malcolm (Chairman of the Gas Consultative Council), Sir Harold Smith, Mr. G. le B. Diamond (Chairman of the Board), Mr. Alex W. Lee (Deputy Chairman of the Board), Alderman G. E. Hodgkinson, and Alderman C. G. Spragg.

Gas in the Service of Public Health

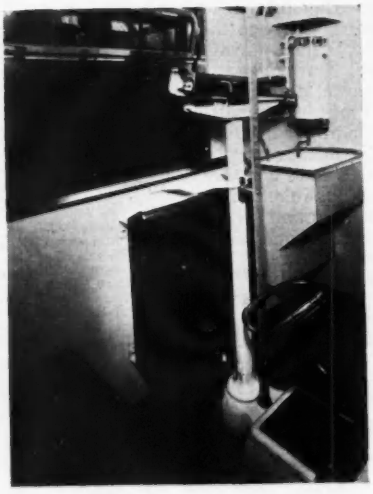


The Barrow-in-Furness mobile medical unit.

IN Barrow-in-Furness new housing estates have developed in the outskirts of the town. The Central Clinic is not within pram-pushing distance of a large part of the population. There is no local demand for health centres, but additional child welfare clinics are needed. To fill the need a mobile clinic has been completed, and we are indebted to Dr. James Maclachan, Medical Officer of Health to the Borough, for the following information on this mobile unit, in which gas plays an important part.

It is believed, writes Dr. Maclachan, that this unit is the first fully mobile child welfare centre in any English town. A Leyland single deck omnibus, serviceable but no longer suitable for passenger carrying, was purchased from the Transport Department, which carried out the work of conversion to a clinic according to plans and specifications prepared in the Health Department, the total cost of the clinic with equipment being approximately £1,500.

Doctor's room with view of convection heater installed under examination couch.



Nurse's room showing heating and washing facilities.

The clinic contains three rooms, the rearmost being a waiting room, the next a nurse's room, and then the doctor's room, which has an examination couch and contains ample cupboard space, wash basin with 'Maxol' instantaneous water heater, and gas-heated steriliser.

Each compartment is heated by a 'Sapphire' convection heater specially modified for use with Calor gas. These heaters have a very low surface temperature so as to minimise the risk of burns, and they discharge their waste products directly to the outside of the vehicle. The instantaneous water heaters and the steriliser are also heated by Calor gas.

The staff consists of a doctor, a district health visitor, and one of the Public Health Department's ambulance drivers. Advice is given to mothers with children under five who have not started school, and the service includes immunisation against diphtheria and pertussis and vaccination against smallpox. Five afternoon clinic sessions per week are held at five different sites which were selected because of their proximity to a main route, central position in the area to be served, adequate pram parking facilities away from traffic, and almost level standing.

In its everyday use the driver delivers the clinic to its selected site in readiness for the afternoon session and collects it again at the conclusion of the clinic.

Vitreous Enamellers Visit De La Rue Works

MEMBERS of the Institute of Vitreous Enamellers paid a visit on October 1 to the main foundry and works of the Gas Division of Thomas De La Rue & Co., Ltd., at Warwick. The visitors were welcomed at a lunch in the Woolpack Hotel by Mr. E. G. Brooks, General Works and Technical Manager, who introduced to the guests the various members of De La Rue staff who were to be their guides for the tour of the factory. Mr. R. J. Rogers spoke on behalf of the Institute members, thanking the company, through Mr. Brooks, for the invitation to visit the factory.

Mr. E. G. Brooks, General Works and Technical Manager, and Mr. R. J. Rogers, Chairman of the Parkinson Stove Co., Ltd., look on while members of the party discuss a point in the enamelling shop.

Arriving at the works after lunch the visitors split into small groups, each with a De La Rue guide, and visited the foundry, fettling shop, machine shop, pattern shop, boiler assembly department and the cooker assembly shop, where they saw a representative display of the company's products, and were invited to take part in a 'quiz' by indicating their personal preferences for six cookers which had been prepared in different finishes. To complete the tour, all the groups converged on the enamelling shop, in which the visitors displayed a particular interest in the enamelling of cast iron and sheet metal components.

Before returning to Cheltenham for the Institute's annual conference to be held the following day, the visitors had tea in the works canteen, and each was given, as a personal memento of the visit, a copy of the new De La Rue cookery book.

Maelor Opening Ceremony

WITH workmen still installing equipment—the boiler house and a relief holder still have to be completed—Lord Lloyd, Parliamentary Under-Secretary of State (Welsh Affairs) to the Home Office, opened the new £850,000 gasworks at Maelor, Wrexham (described and illustrated on pp. 190-192 of this issue) on October 14.

This project, said Lord Lloyd, was an example of the enterprise that had marked Wrexham's industrial activity over the past 120 years. Since the first works had been opened in 1827 Wrexham had always been progressive in its outlook. The old gas company was the forerunner of many Welsh industrial projects and was the first to install gas compression equipment. The works was also first in introducing electricity when electricity was in its infancy.

Another example of enterprise exemplified by the Wales Gas Board was its introduction of the butane gas process at Whitland and the utilisation of methane from the Point of Ayr Colliery. This scheme, said Lord Lloyd, would revolutionise gas production in Britain, and would save 35,000 tons of coal annually.

In this field, he added, Wales was again a pioneer of gas production. 'The best hope of saving coal in the gas industry lies in the replacement of obsolete plant by new equipment, and in concentrating gas making in the larger and more efficient works by building area grids.' This was what the Wrexham area works aimed at doing.

Wales had proved itself as a leader in many enterprises, said Lord Lloyd. Today the only truly national board in any nationalised industry was exemplified by the Wales Gas Board.

Welsh people should be proud of the progressive outlook and enterprise displayed by the industry in the conception and the preparation of schemes which had wide implications.

Demands for gas in North Wales were constantly increasing. In 1900 consumers had used only 100 mill. cu.ft. of gas. Today 430 mill. cu.ft. was consumed annually.

Colonel Sir Harold Smith, Chairman of the Gas Council, said that since nationalisation of the industry 1,000 works had been taken over. This had mean a great deal of work and it was creditable that many gas consumers had never realised that there had been an overnight switch of management. The new gasworks at Wrexham was part of an industrial scheme introduced when the Gas Board was nationalised in 1949. It was an example of a plan for co-ordinating gas production on the grid system, said Colonel Smith. The project was a key link in a new gas grid system which would cover the whole of North Wales.

Mr. A. A. E. Hughes, for 49 years a fitter at the works, made presentations to Sir Harold Smith and Lord Lloyd.

'This works is an earnest of the determination of the Wales Gas Board to play its part in the development of the prosperity of North Wales and the well being of its people,' said Mr. T. Mervyn Jones, Chairman of the Wales Gas Board, introducing Lord Lloyd.

After the opening, Mr. Tom Jones, North Wales Secretary of the Transport and General Workers Union, said that the new project was a vast improvement on working conditions for men employed in the industry. Due to the opening of the new works, however, a number of employees at country undertakings had become redundant. These had already been absorbed in other local industries.

News in Brief

The Scottish Gas Board has given Alloa Town Council an assurance that it is taking steps to try to improve the pressure of gas in the burgh, about which the Council had complained.

Following the recent National Eye Safety Week held by the Royal Society for the Prevention of Accidents, J. & R. Fleming, Ltd., are distributing free posters from their Safety Goggle Division. These may be obtained from 146, Clerkenwell Road, London, E.C.1.

Correction.—We regret that the first line of the advertisement for the South Eastern Gas Board, on page 146 of our issue for October 14, appears incorrectly with the inclusion of the word 'not.' The line should, of course, read 'Candidates must hold a recognised diploma, etc.'

Moxey Conveyor and Transporter Co., Ltd., now has its head office, to which correspondence and accounts should be addressed, at 13, Augustus Road, Birmingham, 15 (Telephone EDGbaston 3575, five lines). The stores address is 19, Lionel Street, Birmingham, 3 (telephone CENtral 2828).

At a meeting of the Wales Gas Consultative Council at Wrexham on October 13, Alderman A. E. Harries criticised a proposal by the Wales Gas Board that new committees should be appointed for North and South Wales to collaborate with them on grid developments. He suggested that with their knowledge of local conditions they were competent to deal with matters without setting up more committees. Alderman Harries added that an aptitude for forming committees was fast becoming a Welsh disease. Mr. S. T. Ithell said important matters to be considered included the extension of the grid to areas without gas, and he would like the Board to define the duties of the proposed new committees. It was decided to seek further information from the Board before taking definite action.

A New Blast Furnace which has taken only 415 days to build has been brought into operation at the Redcar Works of Dorman Long & Co., Ltd. Most of the work has been done by Dorman Long's own staff. The furnace replaces on older one which is to be dismantled. Another furnace, similar to that recently completed, will be completed next year.

Metro-Flex Control for Lancashire boilers will appear on the National Coal Board stand at the Manchester Fuel Exhibition from November 18 to 28. The front of a full size Lancashire boiler will be shown, on which the Control, together with the most advanced types of mechanical stoker, etc., will appear. Metro-Flex Control has been specified by the National Coal Board for every coalfield in the country. Information about the control can be obtained from the Metropolitan Engineering Co., Ltd., 47, Whitechapel High Street, London, E.1.

Overwhelmed.—When the Sunderland Division of the Northern Gas Board embarked upon a major advertising campaign offering new and advantageous terms for gas fires, it had no idea of how overwhelming the rush would be. Housewifes queued to get into the Sunderland showrooms, and on one day when Mr. Jack Hall, the janitor, went to put the gates across the entrance at closing time, women still waiting to enter the showroom surged forward, knocking Mr. Hall off his feet and depositing him through one of the plate-glass windows. Luckily he escaped injury.

The Coventry Works of George Wilson Gas Meters, Ltd., again made London the venue for their annual outing, travelling by an early train, so that there was time to look round the shops before lunch, which was taken at a restaurant in the West End. Some members went to an ice show, others to football matches, while a great number visited the Radio and Television Show, where great interest was shown in the rehearsals for the evening television performance. In the evening many of the members enjoyed West End shows, and others spent the afternoon and evening in their own particular fashion.

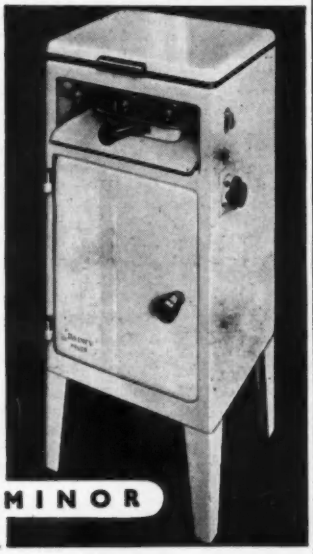
Catering Equipment Manufacturers visited the Watson House Laboratories of the North Thames Gas Board on October 7. Many of them saw their own appliances on test at the centre. Some 50 manufacturers, members of the Catering Equipment Manufacturers' Association, under their Chairman, Mr. J. C. Morris, spent the day at the centre, where they were welcomed by the Manager, Mr. G. C. Holliday. Members of the Catering Panel, with their chairman, Mr. A. V. Horsfall, were also present. In the morning, the manufacturers inspected the exhibition, the laboratories and the research kitchen. After luncheon, members of the Watson House staff showed how to carry out the simpler British Standards tests using inexpensive equipment.

COLONIAL GAS ASSOCIATION

Intimation has been received by the Colonial Gas Association from Colonial Gas Holdings, Ltd., that the offer dated August 7 relating to the exchange of preference and/or ordinary shares in the Colonial Gas Association for fully-paid shares in the company has been accepted by the holders of such number of shares as the company considers sufficient. The agreement constituted by the acceptance of the offer thus becomes unconditional, and the company will therefore proceed with the necessary steps to enable the exchange of shares to be completed. The register of members and transfer books of the Association will be closed from October 20 to November 10, to facilitate the exchange of shares.

BIG Capacity for LITTLE Kitchens

Especially suited to the kitchens of flats and small houses, this highly efficient cooker provides utmost cooking capacity in the least possible space. Cast iron construction ensures strength and durability and reduces maintenance costs to a minimum, thus making the Dainty Minor particularly suitable for simple hire or hire purchase.



Approved and adopted by leading gas boards

The **Dainty** MINOR

R. RUSSELL & SONS, LTD., DERBY

Agents for Scotland and Northern Ireland:
JAMES R. THOMSON & CO. LTD., 41, YORK STREET, GLASGOW, C.-

Take your workbench with you

ON A PRATT TRAILER SPECIALLY DESIGNED FOR THE GAS INDUSTRY

This latest addition to the range of PRATT trailers embodies all the recognized qualities of the other models...sound design and construction, strength at minimum weight, excellent springing, stability, good carrying capacity.

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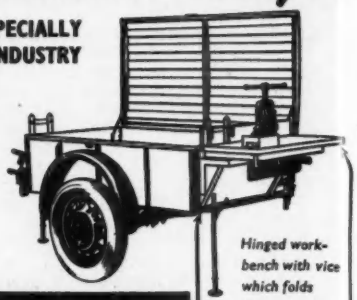


Hinged workbench with vice which folds into body when travelling or not in use.

THE PRATT ENGINEERING COMPANY
NORTHALLERTON, YORKS. TELEPHONE · NORTHALLERTON 142

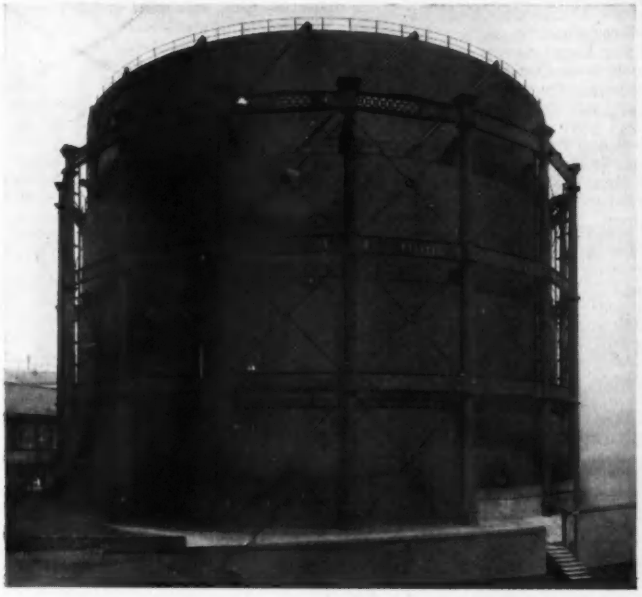
CASES FOR BINDING

Quarterly Volumes of the 'Gas Journal'

5/- each, post free

Walter King, Ltd., 11, Bolt Court, Fleet Street, London, E.C.4.

GASHOLDERS by



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PUBLISHERS' NOTICE

The " Gas Journal " is published every Wednesday, price 1/3d.; by post 1/5d.

Subscription Rates: Home and Empire:—52/- per annum; Foreign:—60/- per annum. (Both payable in advance.) A copy of the " Gas Journal " Calendar & Directory is presented each year to continuous subscribers.

Classified Advertisements: All small classified advertisements are charged at 1/9 per line (approx. 7 words)—minimum charge 10/6. A Box Number address occupies 2 lines, and a further 6d. is charged towards cost of postage on replies. Copy must be received by first post on Monday to ensure insertion in that week's Journal.

Displayed Advertisements: Rates obtainable on application to the Business Manager. Change of copy for displayed spaces must be received 14 days prior to publication if proofs are required. Type area of inside pages 10" deep × 7" wide; block screen 120.

BUSINESS MANAGER : S. T. CULLEN

MIDLANDS OFFICE: 10, Union Street, Birmingham.

NORTHERN MANAGER: W. Q. Foster, 33, St. Helens Road, Harrogate. *'Phone:* Harrogate 84291.

WALTER KING, LTD., 11, Bolt Court, Fleet Street, London, E.C.4.

Telephone: CENtral 2236-7. *Telegrams:* Gasking, Fleet, London.

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SPECIALLY ACTIVATED OXIDE OF IRON

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Highest prices paid for Spent Oxide.

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TRAGEDY AVERTED BY

NU-SWIFT!

"Escape seemed impossible . . . chemical machines spluttered and failed . . . acid squirted by one just missed my eyes . . . but reliable, non-damaging Nu-Swift saved us all."

NU-SWIFT LTD · ELLAND · YORKS

In Every Ship of the Royal Navy

"KLEENOFF" *

THE COOKER CLEANER

"KLEENOFF"

FIBRE BRUSHES
RUBBER MOPS

"KAY-DEE" *

KETTLE DESCALER

* *For resale to the public, and in bulk for Works use.*

SALE & CHURCH, LTD.

7, CROMPTON WAY, CRAWLEY, SUSSEX.

APPOINTMENTS VACANT

The engagement of persons answering these advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employment, is excepted from the provisions of the Notification of Vacancies Order, 1952.

SUPERINTENDENT required to take complete charge of Glasgow branch of reputable gas meter manufacturer in the production and repair of gas meters. Must have full knowledge of shop control. Reply giving details of previous experience and salary required to : No. 169, *Gas Journal*, 11, Bolt Court, Fleet Street, London, E.C.4.

FLAVELS of Leamington have a vacancy in their laboratory for a PHYSICIST or PHYSICAL CHEMIST for development work on gas and solid fuel appliances. Applicants should preferably have a B.Sc. degree, or its equivalent, and some experience of industrial research.

Apply in writing to the Secretary, Sidney Flavel & Co. Ltd., Eagle Foundry, Leamington Spa, giving full particulars of qualifications and stating salary required.

PLANT OPERATORS. Seniors and Juniors required, experienced in starting to work and servicing of Gasworks Carbonising Plants, Horizontals, Intermittent Vertical Chambers, etc. Good opportunities for experienced men. Pension scheme, profit-sharing, and opportunity for travel both in this country and abroad. Good salaries to the right men. Apply giving full details of previous experience, age and salary expected, to W. J. Jenkins & Co., Ltd., Beehive Works, Retford, Notts.

WEST MIDLANDS GAS BOARD

WORCESTERSHIRE-HEREFORDSHIRE DIVISION

DISTRIBUTION SUPERINTENDENT—KIDDERMINSTER GROUP

CANDIDATES should have sound knowledge of high and low pressure gas supply and of main and service laying by direct labour. They should possess good fittings experience and be able to control labour. The successful candidate will be responsible for the efficient conduct of all aspects of a distribution department, including sales and service. Possession of the Institution of Gas Engineers Higher Grade Certificate in Gas Supply will be an advantage.

The salary for the post will be within Grade VIII (£585-£665 per annum) of the National Salary Scales for Gas Staffs.

Housing accommodation, at a reasonable rental, may be available, if required.

The post is pensionable and the successful candidate may be required to pass a medical examination.

Applications, stating age, qualifications and experience, together with the names of two referees, should be addressed to Mr. C. F. W. Rendle, Divisional General Manager, West Midlands Gas Board, Worcestershire-Herefordshire Division, 12, St. Nicholas Street, Worcester, to reach him within fifteen days of the appearance of this advertisement.

F. H. CURETON,
Secretary to the Board.

SOUTHERN GAS BOARD

NORTHERN DIVISION

GROUP DISTRIBUTION ENGINEER—AYLESBURY AND DISTRICT GAS UNDERTAKING

APPLICATIONS are invited for the position of Group Distribution Engineer to the above Undertaking.

Applicants must have administrative experience and be capable of preparing estimates and specifications and supervising work on both high and low pressure mains systems.

The commencing salary will be £750 per annum, and a house is available at a reasonable rent.

The post is pensionable and the successful applicant may be required to pass a medical examination.

Applications should reach the undersigned not later than November 4, 1953, giving the names of two referees.

H. G. BROADBRIDGE,
Engineer and General Manager.

87/89, High Street,
Aylesbury,
Bucks.
October 14, 1953.

NORTH WESTERN GAS BOARD

APPLICATIONS are invited for the following pensionable appointments :—

MANCHESTER GROUP

ASSISTANT DISTRICT DISTRIBUTING ENGINEER

(Salary within Grade A.P.T. IX—£615 to £715 per annum).

Applicants should possess the Higher Grade Certificate (Supply) of the Institution of Gas Engineers or an equivalent qualification, and should be experienced in all branches of gas distributing both low and high pressures.

Sound training and experience in the planning, estimating and supervision of distribution systems is essential.

Detailed applications, giving the names of two referees, should reach the General Manager, North Western Gas Board (Manchester Group), Town Hall, Manchester, 1, within fourteen days.

NORTH CHESHIRE GROUP

YARD FOREMAN—PORTWOOD WORKS, STOCKPORT

(Salary within Grade A.P.T. VI—£490 to £570 per annum).

The person appointed will be required to control all the day labour of the Portwood Works, excluding craftsmen, and applicants should have had extensive experience of these duties at a large modern gas works.

Detailed applications, giving the names of two referees, should reach the General Manager, North Western Gas Board (North Cheshire Group), Gas Works, Portwood, Stockport, within fourteen days.

SOUTH LANCASHIRE GROUP

SHOWROOM MANAGER—WIDNES

(Salary within Grade A.P.T. VI—£490 to £570 per annum).

The successful applicant will be required to control the Sales Staff and be responsible for the day to day administration of the Showrooms.

Detailed applications, giving the names of two referees, should reach the General Manager, North Western Gas Board (South Lancashire Group), Radiant House, Cotham Street, St. Helens, within fourteen days.

(Classified Advertisements continued on page 210)

APPOINTMENTS VACANT (ctd.)

DRAUGHTSMAN (SENIOR) age 30/40, for large constructional engineering Co., in the Midlands. Wide gas holder and platework experience essential. Good opening for right man. Pension scheme. Write in confidence stating age, experience, and qualifications and salary expected to: Director & Secretary, Box No. 256, 19/21 Corporation Street, Birmingham, 2.

WALES GAS BOARD

ENGINEERING ASSISTANT

APPLICATIONS are invited for the post of Engineering Assistant on the Technical Headquarters Staff of the Wales Gas Board.

Applicants should be suitably qualified and to have had the necessary experience to enable them to assist in the design and to supervise the construction of two new stations, one for the purification and compression of coke oven gas and the other for reforming, treatment and compression of methane recovered from coal mines.

The work will necessitate residence in Cardiff and in North Wales at different stages of development and applicants will be expected to travel as may be required.

The appointment will be subject to review upon completion of the coke oven and methane plant installations, which is expected to be in approximately three years' time.

The appointment will be subject to a satisfactory medical examination and entry into the Board's Superannuation Scheme.

The salary offered is in the region of £900 per annum, subject to qualifications and experience.

NORTH WALES GAS GRID

DRAUGHTSMAN

APPLICATIONS are invited for the above appointment. Applicants should have had experience of the preparation of route surveys and drawings in connection with major main-laying schemes and should preferably possess the Higher National Certificate in Mechanical Engineering or an equivalent qualification.

The duties will be in the North Wales area and candidates will be required to live in or near Rhyl. The salary will be within Grade A.P.T. VIII (£585-£665) and the successful candidate will be required to pass a medical examination and subscribe to the Board's Superannuation scheme.

NORTH WALES GAS GRID

ASSISTANT DISTRIBUTION ENGINEER

MAINS—NORTH WALES

APPLICATIONS are invited for the above appointment.

Applicants should hold as a minimum qualification the Higher Grade Certificate in Gas Engineering (Supply) or an equivalent qualification and should have had experience of the laying of high pressure mains and the use of mechanical plant and equipment.

The duties will be in the North Wales area and candidates will be required to live in or near Rhyl.

The salary payable to a suitably qualified and experienced candidate will be £1,000 per annum and the successful candidate will be required to pass a medical examination and to subscribe to the Board's Superannuation Scheme.

Applications for the above positions, stating age, training, qualifications and experience, together with details of present and previous appointments, accompanied by the names of two referees should reach the undersigned not later than November 9, 1953.

C. B. MAWER,
Secretary.

2, Windsor Place,
Cardiff.

WALES GAS BOARD

CARDIFF UNDERTAKING

APPOINTMENT VACANT—

ENGINEERING DRAUGHTSMAN

APPLICATIONS are invited for the above-mentioned position at the Grangetown Works of the Cardiff Undertaking.

Candidates should possess the National Certificate in Mechanical Engineering, or equivalent qualification, and preference will be given to those having experience in the Gas Industry.

The successful candidate will be required to undergo a medical examination and to subscribe to the Board's Superannuation Scheme.

The salary will be within Grade A.P.T. VIII, Provincial 'A' (£585-£665 per annum) of the scales agreed by the National Joint Council for Gas Staffs.

Applications stating full personal particulars and experience, giving the names of two referees, should be addressed to the undersigned and posted so as to arrive within fourteen days of the appearance of this advertisement.

J. POWDRILL,
General Manager and Engineer.

Gas Offices,
Bute Terrace,
Cardiff.

APPLICATIONS are invited for the position of:—

(*a*) TECHNICAL ASSISTANT in the Gas Plant Contracting Department. The successful applicant would be based on the Head Office at Leven and would be required to deal with designing, estimating, preparation of specifications, tenders, etc., for a wide range of Plant.

Previous contracting experience would be an advantage.

(*b*) SENIOR DRAUGHTSMEN, having experience of designing, detailing and layouts of Gasworks Plant. Knowledge of Gasholder construction would be an advantage.

The positions would be permanent and subject to an attractive pension scheme.

Priority arrangements are in force to assist 'key' workers in obtaining Housing Accommodation.

Applications giving particulars of age, education, qualifications and experience should, in either case, be addressed to the Personnel Officer, Henry Balfour & Co. Ltd., Durie Foundry, Leven, Fife.

EASTERN GAS BOARD

CAMBRIDGE DIVISION

DISTRIBUTION SUPERINTENDENT

APPLICATIONS are invited from suitably qualified persons for the position of Distribution Superintendent at Cambridge District.

It is essential that applicants shall have had experience in all practical aspects of distribution, including medium and low pressure main and service work and be capable of preparing estimates and planning estate mains layouts.

The successful applicant will be responsible for the organisation and control of main and service laying personnel engaged on work at Cambridge and adjacent districts.

The salary will be in accordance with Grade A.P.T. VIII, Provincial 'A', initial placing according to qualification and experience, and the successful candidate will be required to pass a medical examination and become a member of the Board's pension scheme.

Applications giving full details of training and experience together with the names of two referees, should be sent to the General Manager, Eastern Gas Board (Cambridge Division), 52, Sidney Street, Cambridge, within fourteen days of the appearance of this advertisement.

October 13, 1953.

SCOTTISH GAS BOARD

WESTERN GROUP

GREENOCK & PORT GLASGOW DISTRICT

SENIOR TECHNICAL ASSISTANT

APPLICATIONS are invited for the position of SENIOR TECHNICAL ASSISTANT at Greenock. The salary will be within the range of grades A.P.T. III-VI of the National Joint Council for Gas Staffs, Provincial 'A' Scale, with placing according to qualifications and experience.

Candidates should possess the Higher Grade Certificate in Gas Engineering (Manufacture) of the Institution of Gas Engineers, or equivalent and have had experience in working of carbonising and ancillary plant.

The successful candidate will be required to pass a medical examination and become a member of the Board's Superannuation Scheme.

Applications, stating age, experience and qualifications should be addressed to the subscriber within fourteen days of publication of this advertisement.

WILLIAM KIRK,
District Manager.

Inchgreen Gas Works,
Greenock.
October 14, 1953.

FOR SALE

FOR SALE:—Brazing or Soldering Machine by Standard Telephones, Electro-Gas, Push Button Control, Process Timing, Length of Burner 24 in.—Copperad, Ltd., Colnbrook 203.

PATENTS

KINGS PATENT AGENCY, LTD.

(Director, B. T. King, A.I.Mech.E., Patent Agent.) Advice, Handbook, and Consultations free. 146a, Queen Victoria Street, London, E.C.4. 'Phone: City 6161.

MISCELLANEOUS

THE REPLY IS IN THE NEGATIVE

THESE DAYS, a sound investment is something to write home about. What we write of here is not a new discovery, for it has long been at the disposal of industry. The point is that only the alert are using it to their full advantage. We refer to the help afforded to administration by a FULL PHOTOGRAPHIC RECORD of constructional jobs from foundation to completed building, from rough casting to finished product. Nothing escapes the eye of the camera. No other recorder covers such a wide field. A progressive file of photographs taken at regular, specified intervals, is an ever-present aid to the busy executive. It can be referred to at once in case of any point which may arise during the construction of plant or the making of a product. It shows progress at a glance unmistakably and eliminates the cause of wrangling and argument.

Walter King Photographs are specially staffed and equipped for this type of work and are prepared to tour the Midlands, Southern Counties, and Home Counties.

Details of this photographic service on request to Walter King, Ltd., 11, Bolt Court, Fleet Street, London, E.C.4.

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LIQUOR CONCENTRATION
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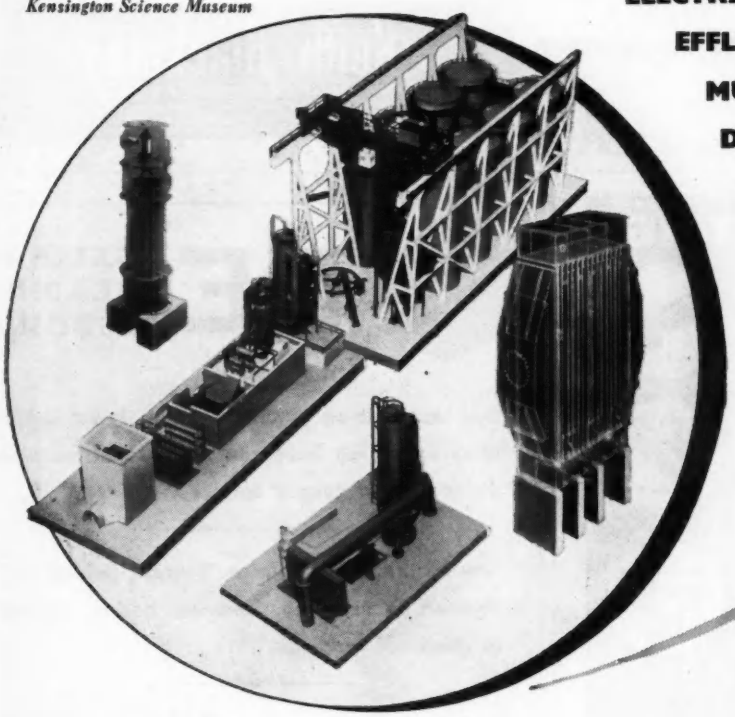
MULTIFILM WASHERS
DUST PRECIPITATION
BUTANE-AIR PLANT
TOWER PURIFIERS
STATION METERS
AIR BLOWING

Models illustrated with acknowledgment to South Kensington Science Museum



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Telephones: Huddersfield 5280 London: Victoria 9971 Birmingham: Midland 6830

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we serve to burn

"Fishtail" type burner *with two-armed stamped pattern injector for heating liquid in tanks by submerged horizontal combustion tubes. For use with low pressure gas supplies.*
Size Range: *1", 1¼", 1½", 2" and 2½" outlets.*
Capacity Range: *45-280 cu. ft. of gas per hour.*

Note.—These four burner heads are for high pressure gas or low pressure gas and air blast.

Brass non-blow-off head types: *deal with 5 to 10 cu. ft. of gas per hour.*

Stainless steel, "F" type head, burner: *deals with 8 cu. ft. of gas per hour.*

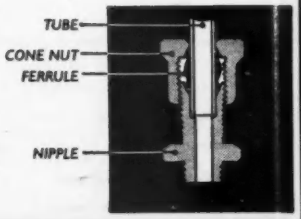
Perforated head type burner: *deals with 10 or 15 cu. ft. of gas per hour.*

Type 2 Mixture Controller, *for controlling quality of air/gas mixture irrespective of varying pressures and resistances. Temperature control is varied by manipulation of the air cock only.*
Capacity Range: *from 130 to 1380 cu. ft. of gas per hour according to air pressure (¼ lb. to 1 lb.) and size. For low pressure gas systems.*
Air Inlets: *1", 1¼", 1½" and 2" diameters gas thread.*

INDUSTRIAL GAS EQUIPMENT

DID YOU KNOW?

KEITH BLACKMAN have been making compression joints for many years and the present design embodies features developed as a result of this long experience. Notice that the shape of the ferrule is such that the joint is made without unduly stressing the tube.



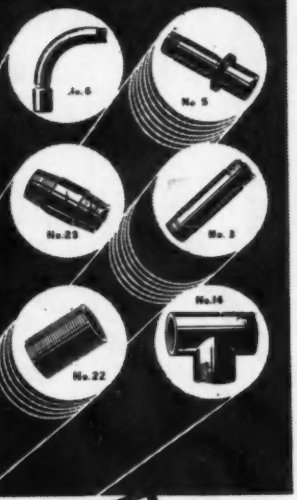
Keith Blackman LIMITED
MILL HEAD ROAD, TOTTENHAM, LONDON, N.17
'Phone: Tottenham 4522 (twelve lines). 'Grams: "Backfire, Northaro, London"
BRANCH OFFICES AT MANCHESTER, BIRMINGHAM, LEEDS, GLASGOW, NEWCASTLE-ON-TYNE, PENARTH near CARDIFF, AND BELFAST

510

STEEL TUBES & FITTINGS

FOR

Gas. Water & Steam



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RUSSELL BROS (WALSALL) LIMITED
BRADFORD TUBE WORKS · WALSALL · ENGLAND

The Bradford Tube Works occupies a factory area of some three acres exclusively devoted to the manufacture of Steel Tubes and Fittings.
Contractors to Admiralty and War Office.
Extensive stocks.

MERCOL PIPE LINE SERVICE FULL BORE

DE-SCALING -GREASING -SLUDGING

Our specialised function is to keep mains working at full bore—with the least possible dislocation of supply services.

Gas Mains, Water Mains, Sewers, Drains, etc., cleaned by scraping, dredging, boring, flailing, or chemical methods.

Mobile descaling units with latest equipment at your service on short notice.

Write for details

MERCOL PRODUCTS LTD.

Eyre Lane

Descaling Engineers **SHEFFIELD**

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Registered as a Newspaper. Printed by STRAKER BROTHERS LTD., E.C.2 for WALTER KING LIMITED, 11, BOLT COURT, FLEET ST., LONDON, E.C.4. Wednesday, October 21, 1953.

1953

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21, 1951.

What's in a Name..?

In this case something worth noting. Continuous research, carried out on our own full-scale gas works; testing gas-making coals, studying problems of retort and setting construction, checking materials used on Glover-West installations, designing new equipment to increase retort house efficiency. A progressive approach to the job of producing efficient carbonisation plant. We are not static. Our aim, in a word, is improvement.

We are Exhibiting at the Fuel Efficiency IN INDUSTRY AND HOME Exhibition NOV. 18-28 1953 CITY HALL DEANSGATE MANCHESTER ORGANISED BY PROVINCIAL EXHIBITIONS LTD

West's Gas

IMPROVEMENT COMPANY LIMITED

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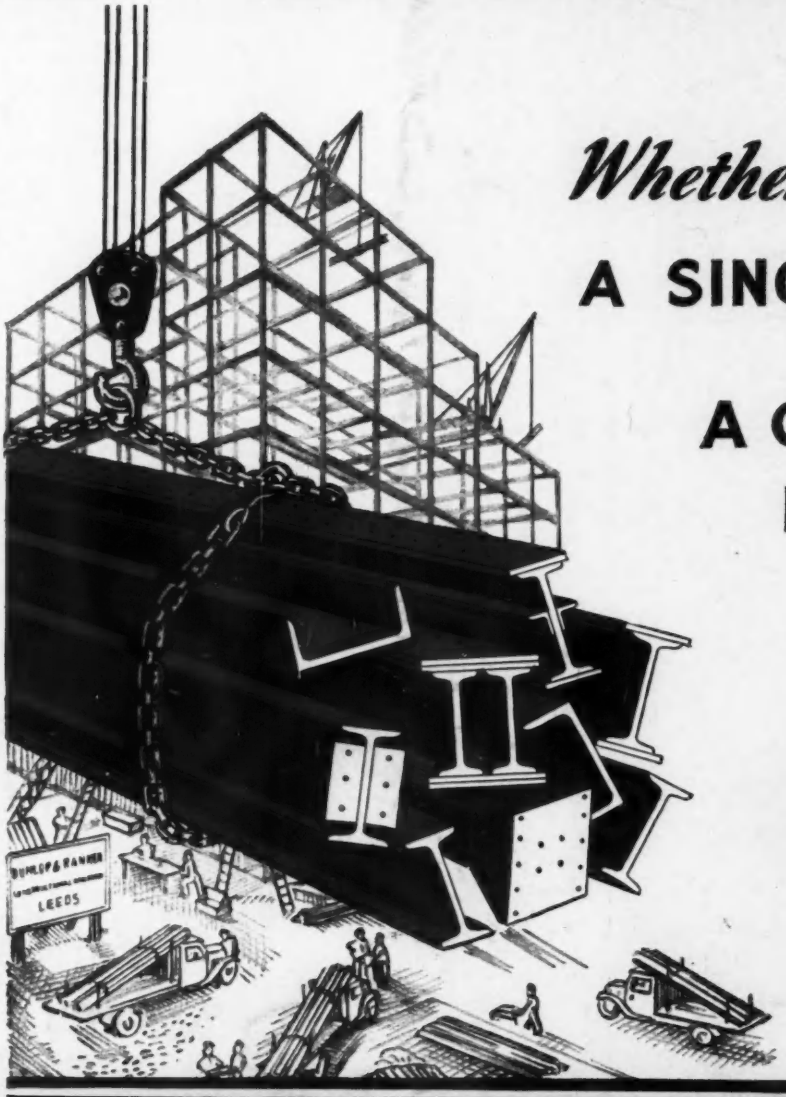

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